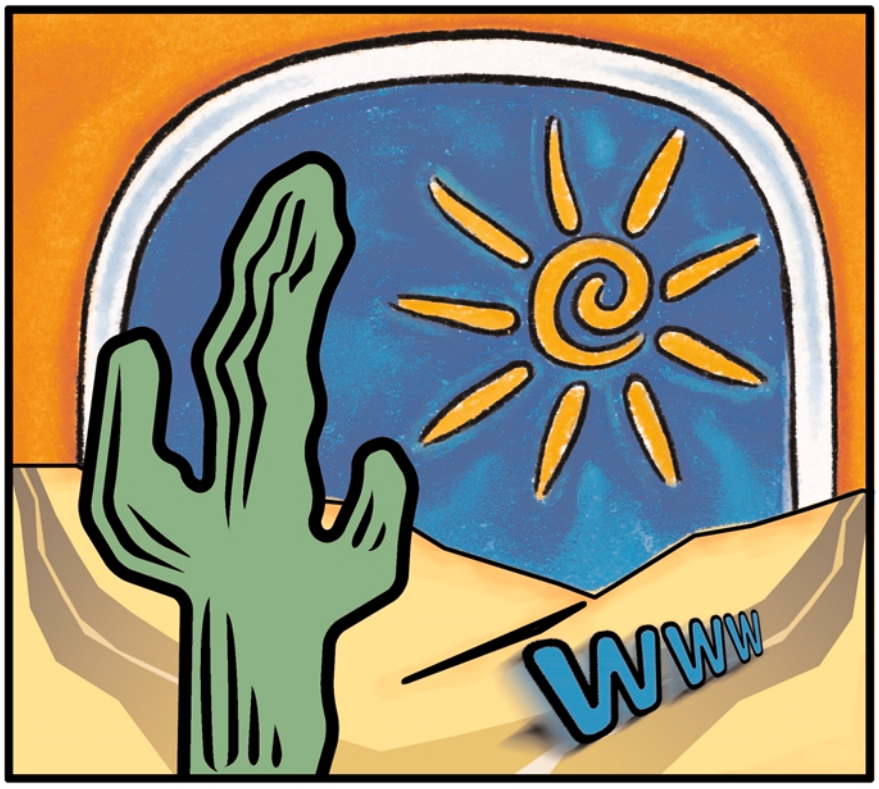
Arizona Health-*e* Connection Roadmap

April 4, 2006



"To facilitate the design and implementation of integrated statewide health data information systems that support the information needs of consumers, health plans, policymakers, providers, purchasers, and researchers and that reduce health-care costs, improve patient safety, and improve the quality and efficiency of healthcare and public health services in Arizona."

Arizona Health-e Connection Mission Statement

Arizona Health-*e* Connection Roadmap

April 4, 2006

Funded by St. Luke's Health Initiatives and BHHS Legacy Foundation

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eHEALTH INITIATIVE
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A. Overview

Arizona recognizes that a statewide infrastructure to exchange health information electronically will improve the quality and reduce the cost of healthcare in Arizona by:

- Ensuring health information is available at the point of care for all patients
- Reducing medical errors to improve patient safety
- Avoiding duplicative medical procedures
- Improving coordination of care between hospitals, physicians, and other healthcare professionals
- Furthering healthcare research
- Enhancing public health and disease surveillance efforts
- Encouraging greater consumer participation in their personal healthcare decisions
- Enhancing the business environment for both small and large employers and reducing state expenditures by controlling healthcare costs

Through executive order, Governor Janet Napolitano requested that a wide range of interests determine a strategy to achieve a vision of 100 percent electronic health data exchange among payers, healthcare providers, consumers of healthcare, researchers, and government agencies, as appropriate. Hundreds of Arizonans representing diverse interests and geographies voluntarily contributed to the process and are enthusiastic about the possibilities of moving e-health forward. This Arizona Health-*e* Connection *Roadmap* is the result of that process.

The *Roadmap* articulates a path to improve the quality and reduce the cost of healthcare in Arizona. This path ensures that the needs of rural communities and small physician practices are accommodated.

The *Roadmap* identifies key decision points by focusing on the what, when, why and who – what action needs to occur, when the action needs to occur, why the action is necessary, and who (individual/group/organization) is required to complete the action. Many of the "how" questions are to be answered in the implementation phase and are not addressed in this *Roadmap*.

Choices identified in the *Roadmap* were considered from the perspectives of *urgency* and *feasibility*. Urgent initiatives bring relief to a problem in the healthcare system. They provide a high level of value to one or more constituent communities (such as patients, providers, and payers). Feasible initiatives include items likely to immediately succeed *as well as initiatives that are necessary prerequisites to achieve an urgent priority initiative*. Implementation of a feasible initiative does not necessarily provide a high level of standalone urgent value.

The *Roadmap* is constructed with initiatives that provide either a high level of urgent value or feasible value or both. Sequencing of the recommended initiatives was chosen to maximize impact and utility for the sum total of all initiatives. The *Roadmap* plan is designed to be scalable.

Although the *Roadmap* is a statewide plan and includes many elements of statewide coordination, some *Roadmap* initiatives will be implemented on a regional basis within the context of a medical trading area, or MTA. An MTA is usually a geographic area defined by where a population cluster receives its medical services. It is an area in which groups of physicians, hospitals, labs, and other providers work together to serve a population of consumers.

B. Health Information Technology and Health Information Exchange

The *Roadmap* advances an approach that recognizes a fundamental distinction between health information technology (HIT) and health information exchange (HIE). The combination of HIT and HIE approaches constitutes much of the *Roadmap*. This fundamental distinction simplifies the interrelationships between various components and clarifies the strategies necessary for e-health implementation.

Health information technology is a local deployment of technology to support organizational business and clinical requirements. HIT is technology implemented within the physical space of a doctor's office, laboratory, and hospital or virtually through a hospital system. Items such as electronic medical records (EMR) systems, administrative systems (such as billing), and workflow systems are examples of HIT systems.

Health information exchange is infrastructure to enable data sharing between organizations. Services are built once and used multiple times by many. Items such as a central Web site, healthcare terminology translation tools, a master patient index (MPI), authentication and authorization infrastructure, and applications to aggregate information from multiple sources are examples of HIE resources.

The Roadmap uses the following strategies for HIT and HIE. Specific recommendations presented in other sections of the Roadmap have been developed with direct consideration of these HIT and HIE strategies.

HIT *ROADMAP* STRATEGIES

- Partner with organizations already involved in HIT adoption
- Set and adopt standards (especially for integration with HIE)
- Provide guidance, direction, and education
- Provide incentives
- Identify barriers and propose solutions

HIE *ROADMAP* STRATEGIES

- Begin by developing HIE regionally
- Leverage existing information technology projects and databases
- Develop key statewide resources for data access and sharing

HIT products recognized as key include electronic medical records (EMRs), ePrescribing, and practice management systems (e.g., billing). High-priority HIE projects include a patient health summary, statewide Web portal, secure messaging and infrastructure, and a results delivery service (implemented on a regional basis).

The patient health summary has the most clinical value of all potential initiatives. It provides an assembled view of a patient's most pertinent medical characteristics, such as lab results and trends, allergies, and medications prescribed. The data, once standardized, can also serve as the basis of a personal health record. Since many patients are treated by more than one clinician, compilation of this data affords advances in safety, quality of care, continuity of care, and cost efficiency. Although the patient health summary will include continuity of care information, the *Roadmap* development team has intentionally refrained from using the term "continuity of care record (CCR)." CCR is a term recognized by many in the healthcare industry, but it is not a de facto national standard. The Arizona team found that use of the term CCR tended to confuse discussions because it means different things to different people.

The *Roadmap* makes a distinction between a "basic" patient health summary and an "enhanced" patient health summary. The basic patient health summary is envisioned as a pilot project that compiles information from several existing statewide data sources. It will provide clinical value but is limited in scope on the quantity, type, and standardization of data presented. An enhanced patient health summary is, by comparison, a more complete portrait of an individual's key clinical and administrative information. Several prerequisite activities, such as implementation of regionally based results delivery services, are necessary for realization of an enhanced patient health summary.

The regionally based results delivery service provides a standard mechanism for clinicians to request various types of clinical data (such as laboratory, radiology, etc.) and a standard mechanism for delivery of the results. It is especially important in that it will provide a stream of data to populate core infrastructure components and will also provide a sustainable revenue stream to offset many of the costs to develop and operate an e-health information exchange. Data gleaned from the results delivery service is essential to

establish items such as a directory of clinicians, a master patient index, and storage banks of "normalized" clinical data.

C. Finance

Funding for the Arizona Health-*e* Connection should be obtained from a variety of sources. The *Roadmap* recommends that different funding programs and parameters be considered for HIE, HIT, and a central coordination organization.

It is not necessary to invest large amounts of capital in a central organization to create a top-down funding structure for all Health-*e* Connection exchange activities. In fact, many projects should be funded on a case-by-case basis at an MTA level. In general, funding for the *Roadmap* should be value driven. Costs for ongoing operations should be borne by the organization(s) benefiting from the service. It follows that projects will be addressed when it makes economic sense to do so.

The central coordination organization is small and requires a modest amount of funding, estimated at $3 million to $4 million per year. Funding sources for this function could include grants and donations, state funds, in-kind donations of staff, and various transaction fees.

Regional HIE efforts will require start-up funding of about $1.5 million to $3 million per one million people (population) over the first two years. Like the central coordination organization, potential sources of funding include grants and donations, state funds, and in-kind donations of staff. Ongoing operational funding for a regional organization is obtained from a results delivery service via a self-funding model. The annual funding required to sustain a regional organization is estimated at $2.5 million to $4 million per one million people (population).

The *Roadmap* suggests that most HIT costs should be absorbed by the organization that is the primary user of the HIT system. In fact, many Arizona clinicians have already invested in such systems. A possible approach for clinicians who cannot afford a full EMR system is to offer a subset of those services through a Web-based system. It is believed that this more affordable option could be offered to clinicians for about $3,000 per clinician per year.

D. Legal

Implementation of the *Roadmap* requires that various legal issues be addressed. Arizona must ensure that the health information included in an e-health information exchange is confidential and secure. In addition, consumers must trust that their health information will be kept confidential. Rigorous confidentiality protection for the health information handled by an e-health information exchange is essential to the long-term success of the mission.

Specific legal issues to address include:

- Consumer control over their health information
- Appropriate handling of "special" health information that has greater confidentiality protection
- Appropriate handling of minors' health information
- Identification of those who will have access to e-health information in the exchange and for what purpose

E. Governance

A statewide governance body is needed to develop a uniform approach to legal issues and many other aspects of *Roadmap* implementation. The *Roadmap* recommends that a statewide nonprofit Health-*e*

Connection corporation be created to provide leadership, negotiate standards, and encourage cooperation and collaboration. This organization would strategically collect and distribute funding, help align financial incentives, develop statewide technical infrastructure when needed, and advocate for needed policy change. The governance body would consist of a governance board, board committees, full-time staff, a Council of Initiatives, and a Technology Advisory Council.

The governance board would maintain and refresh the vision, strategy, and outcome metrics underpinning the *Roadmap*. It would provide advocacy when needed and build trust, buy-in, and participation of major stakeholders statewide. In addition, the board would assure that equitable and ethical approaches are used in implementing the *Roadmap*. It might also raise, receive, manage, and distribute state, federal, and private funds. It would prioritize and foster interoperability for statewide and sub-state initiatives. Finally, it would implement statewide projects and facilitate local/sector projects.

The Health-*e* Connection board would include statewide stakeholder interests critical for *Roadmap* success, including clinicians, hospitals, payers, consumers, employers, and service providers (such as laboratories). Statewide representatives would be joined by representatives from each MTA to ensure integrated decision-making at the state and local levels.

Board committees, chaired by board members, would permit input by an even broader set of stakeholders, as well as content expertise in areas such as clinical problem-solving, technical architecture and standards, confidentiality and security concerns, and finance. Recommended standing committees include Clinician, Employer, Payer, and Consumer.

Participants of the many e-health initiatives in Arizona would be asked to join a Council of Initiatives to identify obstacles and solutions to enhance future interoperability of health information systems. The Council of Initiatives would be a forum for all interested e-health projects, including those with a more limited scale than an MTA. In addition, technical advisory boards would be forums to propose technical standards, policies, and solutions.

The Health-*e* Connection board should be supported by a full-time executive and supporting staff. Contractors may also be used to supplement the skills of full-time employees. The staff would execute strategic, business, and technical plans. Staff would also coordinate day-to-day tasks and deliverables, including establishing contracts and participation with local/regional initiatives.

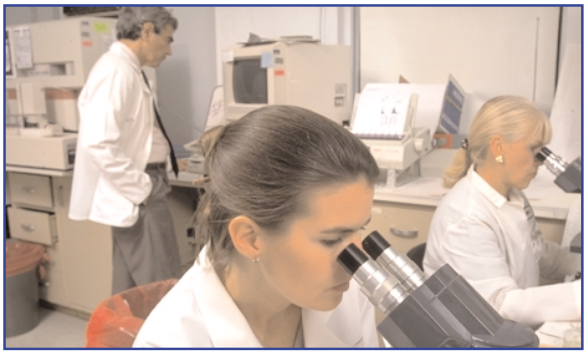
F. Transition Team

Even though the governance body is responsible for implementing the full *Roadmap*, a transition team will implement the governance body and the first deliverables. Transition is estimated to take about 12 months.

One of the most important goals of transition is to maintain the momentum established when developing the *Roadmap*. The first activity during transition is to finalize the transition structure, which includes obtaining commitments from the participants, identifying interim funding requirements, and acquiring the funding. Obtaining commitments from participants should take no more than one month. Identifying interim funding requirements and funding sources will occur over the following several months.

Once the participants commit to working on the transition, other activities will commence. These activities include:

- Establishing a statewide governance organization
- Establishing a practical strategy for statewide engagement in the Health-*e* Connection effort
- Implementing the first HIE initiatives
- Identifying and beginning to coordinate with current Arizona HIT initiatives
- Implementing the committees that will address the privacy, confidentiality, and legal issues
- Developing a marketing and education plan for *Roadmap* implementation



Key HIE initiatives to be implemented during the transition phase include developing a basic patient health summary, setting up a statewide Web portal with security infrastructure components, and establishing the first MTA information exchange with a results delivery service. The first results delivery service will immediately begin to develop a provider directory, establish a master patient index for the MTA, and launch the process of data normalization.

G. Wrap-up

There is no single method to undertake such a diverse task as creating an e-health infrastructure for Arizona. Stakeholders and participants in the process were able to reach a general consensus on the direction of the *Roadmap*. However, the timing of events, technologies chosen, financial strategies employed, and other factors ultimately will be received differently by each stakeholder. The *Roadmap* balances various competing priorities by advocating a representative governance structure, and it incorporates flexibility to adapt to lessons learned, technical advancements, and national standards as they emerge.

The process of implementation is incremental, long, and difficult. Dedicated commitment from multiple stakeholders is imperative. With persistence and diligence, however, Arizona can achieve Governor Napolitano's vision for e-health connectivity.

Finally, development of this *Roadmap* would not have been possible without the coordinated and concentrated contributions and efforts of many Arizona public and private partners, each with a sense of urgency and commitment to advance the *Roadmap* and its recommendations. Their knowledge, input, assistance, and spirit of dedication and teamwork were essential to successful completion of Governor Napolitano's Executive Order. The content presented in this *Roadmap* is a direct result of thousands of hours of volunteered time.

II. Introduction

The delivery and management of healthcare has extended beyond the walls of a single hospital or doctor's office and has resulted in healthcare information being located in a variety of institutions. Since patients and consumers often receive healthcare from more than one location, it is of paramount importance to move healthcare information with patients so that it is available wherever and whenever they receive care. Consensus has emerged within federal leadership and both the public and private sectors that health information technology (HIT) and health information exchange (HIE) play a key role in addressing the mounting challenges facing our nation's healthcare system. Several state governments are becoming engaged in the use of HIT and HIE to support policy goals and the improvement of healthcare delivery and outcomes.

There is no standard, widely accepted solution. Indeed, early experience suggests that successful efforts have different starting points, initial approaches, emphases, organizational forms, and evolutionary paths toward a common objective of a secure and ubiquitous information exchange. Consistent with U.S. Department of Health and Human Services (HHS) Secretary Michael Leavitt's maxim of "national standards, neighborhood solutions," state and local governments are beginning to collaborate and develop a consensus among diverse stakeholders on the vision, goals, and plans required to foster improved healthcare and outcomes through timely and appropriate healthcare information exchange. It is likely that as states begin to recognize the opportunities presented by HIT and HIE, more state leadership and initiatives will emerge.

On August 30, 2005, Governor Janet Napolitano issued Executive Order 2005–25 to develop the Arizona Health-*e* Connection *Roadmap* (see Appendix A: Governor's Executive Order). Under the Governor's Executive Order, the Health-*e* Connection Steering Committee is charged with developing a plan for Arizona to achieve statewide electronic health data exchange among insurance companies, healthcare providers, and consumers of healthcare, as well as exploring issues related to implementing electronic medical records. The *Roadmap* is consistent with the goals of President Bush and the HHS Office of the National Coordinator for Health Information Technology (ONC) to "achieve 100 percent electronic health data exchange between payers, healthcare providers, consumers of healthcare, researchers, and government agencies as appropriate."

Since the Call to Action Summit in October 2005, several activities to support the Executive Order have been made possible with the support of St. Luke's Health Initiatives and the BHHS Legacy Foundation in collaboration with the eHealth Initiative Foundation and its Health Information Exchange partners. Subsequent to the Call to Action, the 42-member Steering Committee, five task groups (Clinical, Financial, Technical, Legal, and Governance) with a total membership of more than 250, and a project management team collaborated for five months to create the *Roadmap* (see Appendix B: Organization Structure for *Roadmap* Creation). Under the leadership of the Steering Committee co-chairs, the activities in Figure I have been completed to create the *Roadmap*:

Figure I: Completed Activities

Project Activity	Impact
Weekly Project Management Meetings	• Increased awareness of activities and scope management • Obtained stakeholder input and collaboration • Initiated task group activities • Created the *Roadmap*
Arizona Briefing/ Assessment Paper	• Identified barriers and priorities • Established a baseline of information
Steering Committee Meetings (five meetings total)	• Established expectations and roles • Provided leadership for the process and a communication channel between the Governor and Steering Committee • Created Task Group charges • Provided guidance and approval of task group recommendations • Assured adherence to the Executive Order • Identified *Roadmap* Mission Statement and Values and Guiding Principles
Five Task Groups Meetings (17 meetings total)	• Identified urgent and feasible priorities • Developed recommendations for *Roadmap*
Task Group Leadership Meetings	• Provided synchronization among all task groups • Reviewed all task group work • Verified recommendations for feasibility and urgency

The Health-*e* Connection Roadmap articulates a path to improve the quality and reduce the cost of healthcare in Arizona. The *Roadmap* identifies key decision points by focusing on the what, when, why, and who — what action needs to occur, when the action needs to occur, why the action is necessary, and who (individual/group/organization) is required to complete the action. Specific values and guiding principles were identified at the onset of this initiative to guide the *Roadmap* development. The top-level values and guiding principles are listed in Figure II. The entire Values and Guiding Principles for Arizona Health-*e* Connection are listed in Appendix C: Process to Create the *Roadmap*.

Figure II: Arizona Health-*e* Connection Top-Level Values and Guiding Principles

- Create achievable, actionable, and practical initiatives
- Ensure that initiatives are consumer focused
- Provide technical basis for health data exchange
- Promote sustainability
- Increase the quality and performance of healthcare in Arizona
- Assist in healthcare research

The *Roadmap* reveals the recommended actions and key milestones to achieve in the next five years to accomplish the goals stated in the Executive Order. The overall goal is to achieve early adoption of a statewide e-health information infrastructure that will improve the quality and reduce the cost of healthcare

in Arizona. Other key benefits include improved care safety and patient self-management and improved surveillance and response to public health problems.

Full achievement of the goals requires interoperable health information systems combining a) health information sufficiently standardized to be machine usable; b) health information technology that can send, receive, route, assemble, and interpret such standardized information when and where needed; c) health information technology that includes automated decision support for better self-care, patient care, and public health; and d) health information exchanges that establish the legal and technical infrastructure to securely, confidently, and efficiently move the information between authorized users.

Healthcare, business, and government leaders throughout Arizona are excited and enthusiastic about the opportunity to improve patient care and delivery through health information exchange developed over a staged, multiyear plan. Through continued dialogue and collaboration among the diverse stakeholders in Arizona, supported by lessons now being learned in different parts of the country, the state has the opportunity to achieve significant gains in quality, safety, and efficiency through the effective and appropriate implementation of the *Roadmap* and become a national leader in e-health information exchange.

Recognizing the Challenges

Arizona clearly faces significant technical, privacy, and sociopolitical challenges in sharing health information statewide. By recognizing these challenges, the *Roadmap* provides strategies to negate the hurdles.

First, a wide variety of stakeholders are at the table with very different expectations. Stakeholders include government agencies, hospitals, physicians, dentists, nurses, pharmacies, labs, insurers/payers, a variety of associations, and consumer interests. The *Roadmap* process took all concerns into consideration in establishing priorities and developing initiatives.

In addition to the variety of stakeholders, stakeholders' adoption of HIT differs widely even among members of the same interest groups and the technology products being used are diverse. Because of the differences in the products and how they are used by various people or organizations, data standardization is lacking. The *Roadmap* acknowledges stakeholder diversity and takes into consideration the enormous amount of work required to remove the resulting ambiguities between the current data sources and to provide better guidance for future technologies that will be implemented.

Another related challenge is Arizona's geographic diversity. Each region has its own opportunities and challenges. For example, some rural areas of Arizona are fairly isolated without bandwidth to take advantage of many of today's technologies. Some consumers live on the borders of other states and receive medical services in those states. Also, some communities, such as Yuma, have close relationships with the medical communities in Mexico. The *Roadmap* takes into consideration the differences in each region.

Of course, there are the additional complexities of organizational policy, laws, regulations, and challenges in paying for implementation of the *Roadmap*.

With all of these and other issues to address, we must recognize that there is no panacea for the challenges ahead. The challenges are not insurmountable, but they must be understood and respected.

The *Roadmap* considers the following points to enable it to meet these challenges:

- Not all of the challenges have been identified; therefore, not all of the answers are available. The *Roadmap* is flexible to meet the challenges ahead

- Changes will occur in technology, medical science, and demographic factors that shape the overall demand for care. The *Roadmap* embraces changes in technology and leverages the future functionality and opportunities that become available to help address changes in medical science and demand patterns. In addition, older technologies will continue to be used and replaced only when participating organizations need additional functionality or have a financial incentive to do so

- Each stakeholder has different needs and different clinical and business processes. To meet these needs, vendors have developed many different but viable products for the market. There is no one-size-fits-all solution. Organizations must be able to use HIT products that address their needs, but also must be

able to exchange data with the rest of the healthcare community. Also, current standards will be changed and improved, and those changes will be absorbed to help with the seamless sharing of data

- The *Roadmap* leverages local interests that wish to implement local initiatives. It is in regional areas that patients are served and where the challenges are best met. The *Roadmap* encourages and supports local initiatives while providing guidance and infrastructure for sharing data among the various regions in Arizona

- The *Roadmap* reduces the disparities between the haves and the have-nots, whether this means those without broadband in their community or those who lack funds to pay for critical infrastructure or products. While the *Roadmap* does not have all the answers, it contains the ingredients needed to address these and other challenges going forward

- No single application determines success or failure of the *Roadmap*. Because of the enormous complexity of the environment and challenges, it is possible for a misstep to occur along the way. The *Roadmap* calls for work on key projects and objectives concurrently. Momentum and advancement will continue, even if one project encounters difficulties. The *Roadmap* also defines an infrastructure that enables reevaluation and permits necessary course corrections along the way

- Momentum developed while creating the *Roadmap* will be leveraged during implementation. Low-risk key products will be developed in the early stages of implementation. An interim transition organization will also be established to immediately begin implementing the *Roadmap*. The transition organization is tasked with establishing a permanent governance structure, among other things. This approach will provide the momentum needed to continue the goodwill and interest established while developing the *Roadmap*

- The *Roadmap* also seeks to leverage existing projects and initiatives under the strategic Health-*e* Connection umbrella. Many good things are happening in the Arizona Healthcare community and they should be encouraged, supported, and leveraged to further the goals and objectives of the *Roadmap*

In recognizing the complexities of the environment, the *Roadmap* takes a phased approach based on geography, functionality, and audience. The phased approach reduces risk and recognizes the challenges associated with location, the capabilities organizations require, and the various stakeholders involved.

While there are challenges, some are fading and the numbers of HIE and HIT initiatives are increasing. No challenge is identified as insurmountable in Arizona's quest to become a national leader in realizing the benefits of HIT and HIE.

III. Roadmap Fundamental Concepts

Several keys to understanding the *Roadmap* approach are presented in this section. The following three fundamental concepts are identified as crucial in creating Arizona's approach.

Fundamental Concept #1: Differences Between Health Information Technology and Health Information Exchange

The *Roadmap* approach is based on a distinction between health information technology (HIT) and health information exchange (HIE). This fundamental distinction simplifies the interrelationships between various components and clarifies the strategies necessary for implementation.

Health information technology (HIT) is the deployment of technology to support specific organizational business and clinical requirements. HIT is the technology within the physical four walls of a doctor's office, laboratory, or hospital or a virtual hospital system. Items such as electronic medical records (EMR) systems, administrative systems (such as billing), and workflow systems are examples of HIT systems.

Health information exchange is infrastructure to enable data sharing between organizations. Services are built once and used multiple times by many. Items such as a central Web site, healthcare terminology translation tools, a master patient index (MPI), authentication and authorization infrastructure, and applications to aggregate information from multiple sources are examples of HIE resources.

Specific recommendations presented in the *Roadmap* have been developed with direct consideration of the following HIT and HIE strategies.

HIT *ROADMAP* STRATEGIES

- Partner with organizations already involved in HIT adoption
- Adopt or, if necessary, set standards (especially for integration with HIE)
- Provide guidance, direction, and education
- Provide incentives
- Identify barriers and propose solutions

HIE *ROADMAP* STRATEGIES

- Begin by developing HIE regionally
- Leverage existing IT projects and rich data sources
- Develop key statewide resources for data access and sharing

Some items do not fit neatly in either the HIT or HIE category. Those items are identified as such when they are mentioned in the *Roadmap*. For example, ePrescribe systems typically have some components that fit the definition of HIE and some components that fit the description of HIT.

Fundamental Concept #2: Urgency Balanced by Feasibility Determines Timing of Roadmap Inclusion

A guiding principle of the *Roadmap* is to identify initiatives that are practical, achievable, and actionable. The *Roadmap* team recognized that it was not possible to do everything at once. Scarce resources (financial, human, time, etc.) demand that careful examination of all activities be conducted. In addition, it was necessary to identify and prioritize the proper activities to build and sustain project momentum and enthusiasm.

Choices identified in the *Roadmap* were considered from the perspectives of *urgency* and *feasibility*. Urgent initiatives bring relief to a problem in the healthcare system. They provide a high level of value to one or more constituent communities (such as patients, providers, and payers). Feasible initiatives include items likely to immediately succeed *as well as initiatives that are necessary prerequisites for achievement of an urgent priority initiative*. Implementation of a feasible initiative does not necessarily provide a high level of stand-alone urgent value.

The *Roadmap* is constructed with initiatives that provide either a high level of urgent value or feasible value or both. Sequencing of the recommended initiatives was chosen to maximize impact and utility for the sum total of all initiatives.

In the process of developing the *Roadmap*, several initiatives were placed in a grid showing their relative urgency and feasibility. Figure III lists key products and infrastructure components identified in the *Roadmap*. Certain items not identified as priorities from a clinical or business perspective were included in the grid based on their importance as infrastructure components that enabled the important products. The grid's horizontal axis lists the selections "Higher Feasibility" and "Lower Feasibility." The vertical axis lists the selections "Higher Urgency" and "Lower Urgency." The products and infrastructure components were placed in the grid based on their urgency and feasibility. From this grid, the timing of the products and infrastructure in the *Roadmap* was determined.

The grid presents priorities for Year One of the *Roadmap*. Items identified as lower urgency or lower feasibility in the grid increase in priority in later stages of the *Roadmap* as various prerequisite initiatives are implemented.

Fundamental Concept #3: Medical Trading Areas

Many HIE projects will be developed within the context of a medical trading area (MTA). An MTA is usually a geographic area defined by where a population cluster receives its medical services. It is an area in which groups of physicians, hospitals, labs, and other providers work together to serve a population of consumers. Within an MTA, the medical service providers or subsets of providers are often organized either formally or informally, and many are already exploring projects to enable them to share patient data.

Figure III: Urgency and Feasibility as Viewed in Year One of the Roadmap

	Higher Feasibility	Lower Feasibility
Higher Urgency	**Year 1 - 2**	**Year 3 -4**
	Web portal (statewide)	(Enhanced) Patient Health Summary - by MTA
	Statewide (Basic) Patient Health Summary	(Additional MTAs) - results delivery, provider directory, MPI, data normalization
	MTA results delivery	Encourage HIT adoption
	MTA provider directory	Statewide patient record locator
	MTA Master Patient Index (MPI)	
	MTA data normalization	
	Secure Infrastructure components	
	Secure messaging	
	Encourage HIT adoption	
Lower Urgency	**Year 3 - 4**	**Beyond**
	Statewide personal health record	Encourage HIT adoption
	Add public health functions	Add functions for oral health and other professionals

The greater metropolitan Phoenix area is an example of an MTA. The population of the Phoenix area is served by physicians, hospitals, labs, and other providers located in the same geographic area. Many providers have working relationships with each other to serve their patients and they often want an increased ability to share patient data in a secure and confidential way.
Because most data sharing will happen at a regional area with providers that already have relationships in serving consumers, it is much easier to develop trust between providers and it leverages the trust consumers have of their providers. Data-sharing agreements and data-use agreements will be much easier to develop and control at the local level.

MTAs are not specific to a large metropolitan population. Rural areas are included in this process. Arizona may develop several MTAs throughout the state to specifically serve rural providers and to account for the needs of all of Arizona's populations.

IV. Health Information Technology (HIT) Approach

A. HIT Adoption Strategies

The HIT adoption strategies may be summarized in five approaches: 1) partner with other organizations that already have HIT adoption programs; 2) adopt and, if necessary, set standards; 3) provide guidance, direction, and education; 4) provide incentives; and 5) identify barriers and propose solutions.

Partnerships

The statewide Health-*e* Connection governance body will partner with organizations that are already focused on HIT adoption strategies. The governance body will coordinate activities with these partners as the *Roadmap* is being implemented. A sample of the organizations include the Health Services Advisory Group (HSAG) and its efforts to implement the national Doctor's Office Quality–Information Technology (DOQ-IT) initiative, the Arizona Chapter of the Healthcare Information and Management Systems Society (HIMSS), the Arizona Health IT Accelerator (AHITA), and various medical associations. The governance body will partner with these and other organizations and continue the work of HIT adoption in Arizona in a concerted way.

For descriptions of DOQ-IT, AZHIMMS, and AHIT and how they propose supporting HIT adoption within the structure of the Health-*e* Connection *Roadmap*, see Appendix D: HIT Support Organizations.

Standards

Working with partners, the statewide governance body will adopt and set standards to ensure that HIT efforts will be able to exchange data with Arizona's HIE efforts. Arizona will adopt industry standards and certification programs if they meet Health-*e* Connection objectives.

As the *Roadmap* is being implemented, the statewide governance body may determine that the various national and industry standards or certification programs are not detailed enough to adequately ensure that data can be shared. If this is the case, the governance body will provide additional guidance in the form of localized standards for the Arizona HIT community. These localized standards will be developed with input from medical trading areas or strategic HIT partners, depending on the types of standards being developed.

Guidance, Direction, and Education

The statewide governance body will provide guidance, direction, and education to the community as part of the HIT adoption effort. Many of the potential partners working on HIT adoption provide a variety of services to the clinician community to encourage HIT adoption. The statewide governance organization will point people to these programs. One way is by developing a Web site that directs people to the class schedules, program descriptions, online tool kits, and other information and services dealing with HIT adoption. The Web site could provide bulletin boards, online chat rooms, collaborative work tools, and other resources to help the clinician community. In short, the statewide governance body will be a clearinghouse of the available services at the state and national levels.

The statewide governance body also will provide guidance on adopting federal policies and standards at the clinician level. A lot of information is available and it is difficult for people to understand the various requirements that have been developed.

For providers, health plans, and vendors that wish to do business in Arizona, the governance body can provide guidance on requirements for inclusion in the health information exchange. This will provide potential businesses with both the expectations and the opportunities available. This sets a level playing field with all businesses located or wishing to do business in Arizona.

Another area in which the statewide governance body can provide direction and guidance is in the open source movement and how it plays into Arizona's future plans. Many open source products are being developed for use in various aspects of healthcare provision. The governance organization should review

these developments and provide direction to the healthcare community.

HIT adoption would benefit by coordinated HIT classes in Arizona medical, nursing, and related field schools. As graduates enter the medical field, they will already be trained to use HIT and know some of its benefits. The new doctors will be technology savvy and will want to work in offices that were early adopters.

There are numerous other areas in which the governance body can become involved in providing guidance, direction, and education. Additional opportunities include vendor product ratings, pricing information, sample requests for proposal (RFPs), sample contracts, return-on-investment studies, readiness assessments, implementation plans, and HIE interface specifications. The governance body will work with various partners at appropriate times to provide help to clinicians in adopting HIT solutions.

Provide Incentives

The Governor's budget for FY 2007 includes $1.5 million for grant money to be distributed to HIT projects in rural areas. This is to be administered by the Arizona Government Information Technology Agency (GITA). There is other grant money for rural HIT projects at the local and national levels as well. The statewide governance organization will identify and make the clinician community aware of these and possibly provide training in how to apply for them. In essence, the governance body will be a clearinghouse, with information on the Web portal, for all available grants.
The statewide governance organization will work with its partners to explore other financial incentives for clinicians implementing HIT. Incentives may include various HIT tax credits, low-interest loans, raising money from foundations to redistribute as grants, etc.

For clinicians who cannot implement their own HIT solutions, Health-*e* Connection could provide data through a Web browser to encourage minimal adoption of HIT.

Identify Barriers and Propose Solutions

The statewide governance organization will work with its partners to continue identifying and proposing solutions to barriers. It will get involved in activities such as surveys of clinicians that gauge HIT adoption and identify barriers to adoption.

Other Opportunities

There are many other areas in which the statewide governance organization could become involved in HIT adoption. Over time, the governance body will identify areas based on experience that will have the greatest impact. See Appendix E for a list of sample HIT adoption strategies.

B. HIT Products and Functionality

During the *Roadmap* development process, key HIT product types were identified as priorities from a clinician point of view. The three priorities are (in no particular order):

- Electronic medical records
- ePrescribe
- Practice management systems (e.g., billing)

Because they were identified as important to the clinical community during the *Roadmap* development process, these key HIT products are a priority for adoption. The following descriptions of the product types also provide some justification for their being singled out as priorities for adoption.

Electronic Medical Records

Electronic medical records (EMRs), which refer to the capability to record, store, and retrieve patient medical records electronically, are central to improving the care process. This is particularly true with advances that allow portability, remote access, import, storage, and export of machine-readable electronic information (not just text), connection to other applications

such as billing and ePrescribing, and the inclusion of clinical decision support programs that alert clinicians to possible safety or quality problems.

ePrescribing

ePrescribing allows clinicians to order prescriptions electronically from a pharmacy, eliminating handwriting errors and errors related to manual retranscription into and out of paper forms. Many ePrescribing applications also help check medications against patient allergies, interactions with other medications, and insurance plan formularies and price lists. ePrescribe is a product that could have HIT and HIE implications and deployment.

Practice Management Systems

Practice management software is the most widespread electronic information management application in medical practices today. As payment systems for healthcare become more complex (narrow provider networks, multitiered health plans, medication formularies, preauthorization requirements, increased copayments and deductibles, and personal health savings accounts, among other developments), the ability of a practice to negotiate claims with payers and collect fees from patients requires increasing amounts of clinical information. This may be accomplished increasingly through the integration of practice management systems with clinical electronic medical records.

Other Products and Functions

Other products and functions were viewed as important to at least some segments of the healthcare community, depending on the organizations' roles and needs. Continuous encouragement of these products will also be encouraged when applicable. Other important functions included:

- Disease management
- Chronic care management
- Home healthcare reporting
- Real-time results from medical and therapeutic machines and instruments
- Task management
- Referrals
- Charge capture/right coding
- Decision support (alerts, best clinical practices, reminders, facilitate diagnoses)
- Patient education
- Drug-to-drug, drug-to-allergy alerts, etc.

Strategic HIT Systems

Certain HIT systems potentially have strategic value to the *Roadmap*. The strategic value depends on the application, but in general the applications either are data-rich resources for clinical information that might be shared or they provide functionality desirable to other Arizona stakeholders and could be shared to reduce the overall cost of the *Roadmap*. Examples of Arizona HIT systems with potential strategic importance are the state's immunization system, Arizona Health Query, Secure Integrated Response Electronic Notification (SIREN) system, and certain Arizona Health Care Cost Containment System (AHCCCS) data. There are also national data sources and services. SureScripts, a service that provides prescription fulfillment information from pharmacies, is one example. The *Roadmap's* approach to these potentially strategic HIT systems will be ascertained individually based on their strategic value and how they could be leveraged, if appropriate.

In addition, the governance body may determine that, for strategic purposes, it should develop an HIT system. For example, the governance body may determine that it should provide ePrescribing for those without HIT systems. This, in part, will help those that cannot afford or that face other barriers to implementing HIT systems.

V. Health Information Exchange (HIE) Approach

A. HIE Strategies

There are three strategies to develop a statewide HIE in Arizona: 1) begin by developing HIE regionally; 2) leverage existing IT projects and rich data sources; and 3) develop key statewide resources for data access and sharing.

Regional HIE

While the ultimate aim is sharing health data statewide, there are compelling reasons to start the process by developing the infrastructure regionally. The first reason is that medical delivery services are highly regional. A look at the total number of medical services provided to the population shows that the vast majority of services take place relatively close to the patients. Keeping the data close to where it is required enhances the speed and reduces the complexity of providing data to the patients' clinicians. Data-sharing and data-use agreements will be much easier to develop and control at the local level.

When taking on a project of this scope and magnitude, it only makes sense to implement it in portions. Dividing the work by geographic locations where groups already have established working relationships increases the likelihood of success.

Existing IT Projects and Rich Data Sources

Because healthcare projects, initiatives, and databases already exist in Arizona, they should be leveraged as part of the *Roadmap*. Early in the *Roadmap* development process, a high-level inventory was taken and many current initiatives with strategic value were identified. For example, Health-*e* Connection will partner with current initiatives to solve last mile and rural broadband issues.

Key Statewide Resources

Although Arizona will develop HIE regionally, certain resources should be provided statewide. For example, there should be one Web portal that provides access to data available from the various regions. Another example is a centralized patient locator service that can find all medical information about a patient throughout the state, regardless of region.

B. HIE Products and Infrastructure Components

The following sections identify and describe the major HIE products and required infrastructure components necessary to support statewide HIE.

Patient Health Summary

As Arizona works toward sharing health information statewide, many things need to be developed to make that goal a reality. In the process, there are short-term milestones that will add significant value to the quality of healthcare in Arizona. One of these is a patient health summary[1].

During the *Roadmap* development process, a patient health summary was identified as a product that would have the greatest short-term clinical impact on patients. Creating a summary will enhance continuity of care for patients, which impacts quality of care, potentially lowering costs and increasing communication between doctors providing the care. This will help reduce redundant and unneeded care while limiting delays in therapeutic care.

The patient health summary will provide a historic view made of data assembled from a variety of sources accessible to all clinicians on a 24-hours-a-day, seven-days-a-week basis via the Internet. It will contain a variety of information, including result trends, discharge summaries, and procedure reports. Nine types of information (topics) were identified as especially important. They are listed in Figure IV.

Figure IV: Topics of Information for Inclusion in the Patient Health Summary

Medications—prescribed
Medications—dispensed
Allergies
Immunizations
Lab results and trends
Other providers caring for patient (and contact information)
Cumulative medical problem list (from billing and or EMRs)
Insurance/eligibility and basic demographic information on patient
Hospital and emergency department discharge care summary

It is highly likely that the patient health summary will be developed in phases. The *Roadmap* makes a distinction between a "basic" patient health summary and an "enhanced" patient health summary. The basic patient health summary is envisioned as a pilot project that compiles information from several existing statewide data sources. It will provide clinical value but is limited in scope on the quantity, type, and standardization of data presented. An enhanced patient health summary is, by comparison, a more complete portrait of an individual's key clinical and administrative information. Several prerequisite activities, such as implementation of regionally based results delivery services, are necessary to realize an enhanced patient health summary. The enhanced patient health summary will be developed incrementally as the data becomes available and transformed on an MTA-by-MTA basis.

Statewide Web Portal

One milestone on the road to providing a patient health summary and eventual statewide sharing of patient data is developing a statewide Web portal. This will be among the first things to be implemented from the *Roadmap*. Providing a one-stop access point to statewide resources is an important roadmap component because clinicians and citizens will need to know only one Web address to obtain all of the information available to them. The Web portal will provide several important functions.

The Web portal will play a marketing and education role for implementing the *Roadmap*. Any news, updates to functionality, and other developments will be available on the Web portal. Another aspect of this role is providing clinicians and other providers with HIT adoption resources. Information about HIT standards, funding sources, and other pertinent resources will be available on the Web portal. The Web portal will be an important tool for increasing HIT adoption throughout Arizona and communicating to the general public.

In addition, the Web portal will be an access point for online services available now to clinicians and eventually to the public. In the beginning, Web links to services already available from other sources will be provided. For example, currently there are online public healthcare eligibility tools for both clinicians and potential clients. Having one place to find these types of services adds value to the healthcare community and those who want to use those services. As the *Roadmap* is implemented and services are developed, they will be made available through the portal.

Because confidentiality, privacy, and security are so crucial, the Web portal will provide secured access to health information exchange.

Results Delivery Services

An astonishing volume of personal health information must be sent routinely among clinicians, service providers such as laboratories and imaging centers, pharmacies, hospitals, insurance plans, public health authorities, and other parties. Most of this information is sent by paper or fax, with attendant problems in confidentiality, information loss, labor, and errors

created during transcription, sending, receiving, printing, copying, and filing.

Research indicated that one approach successfully employed by several locations is to establish a results delivery service and leverage that capability to build other important e-health components. The concept is to first develop a service that delivers results from labs and other providers to the ordering clinicians in the formats they require. Some clinicians want results on paper, others want them sent via fax, and others want the results sent in electronic format to their automated systems. If labs and hospitals have to establish only one electronic interface for all lab results and they do not have to provide delivery in various formats, then they should save money on delivering the results. The savings would fund sustainable operation of the results delivery and additional infrastructure components necessary to enhance the services.

The results delivery service will be expanded to receive results from all labs and similar providers. These providers include commercial labs, reference labs, imaging centers, outpatient facilities, inpatient facilities, emergency departments, and surgical centers. The results delivery service will develop electronic interfaces to create data streams containing the results from all of these providers. Examples of results in the data stream include blood tests, immunology, pathology reports, X-ray, CAT scan, mammography, transcribed reports, and other information. The service will deliver those results to the ordering physicians and to other authorized recipients.

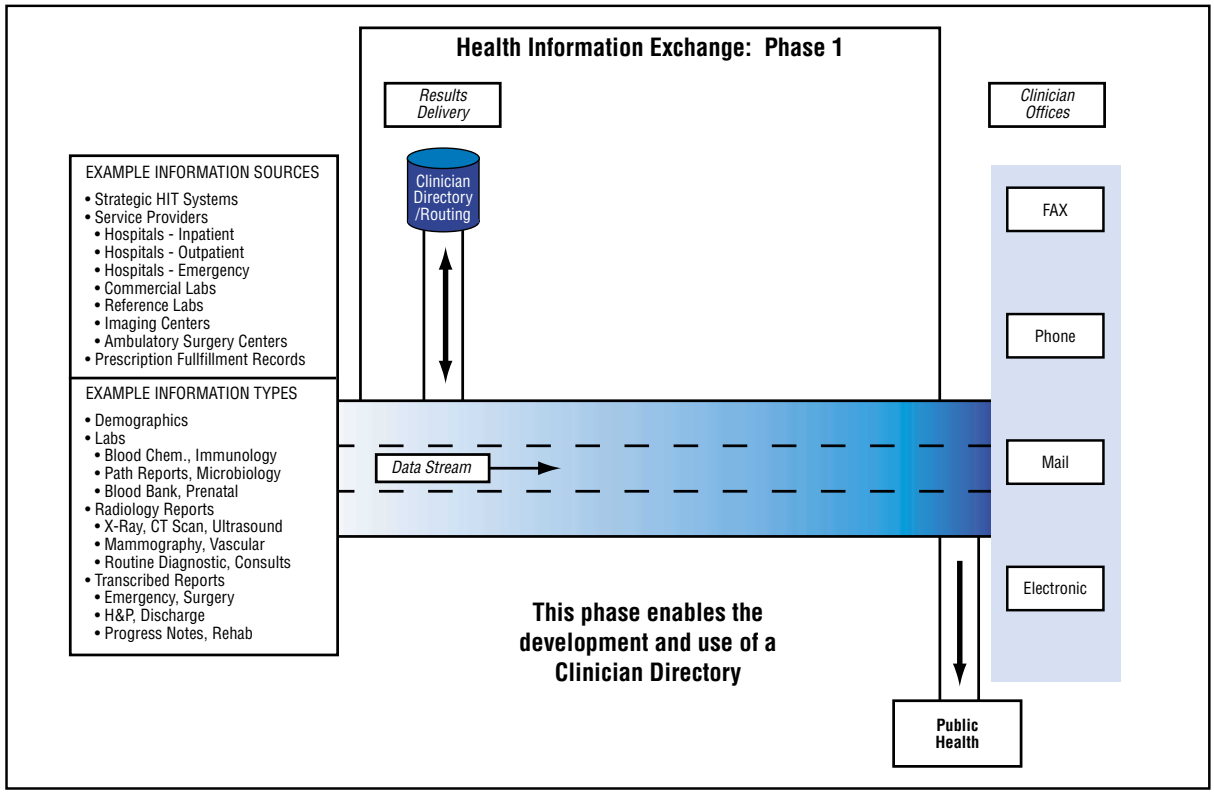
Over time, tools will be developed that glean data from the results to populate other important components necessary to provide a patient health summary. Also, data obtained via this mechanism will be instrumental in populating full electronic medical and health records.

The first important component that will be developed is a clinician directory. Information about the clinicians is necessary to deliver the results. Over time, the service may ask for additional data about the clinician to enhance the directory. During this process, the service will follow national and industry data standards to ensure that data is compatible with initiatives in later phases of the *Roadmap*. Appropriate information about these transactions can begin feeding public health systems.

One way to jump-start the clinician directory is to partner with the healthcare licensing or credentialing agencies and populate the provider directory with their data. The agencies may also be able to provide the administration services for clinicians accessing the data through the Web portal.

Beyond results delivery, the provider directory is important because it would help one clinician look up another clinician and find the appropriate address to send a message through the secure network. This could also be used to establish enhanced services such as a patient referral system. (For example, see Secured Messaging below.) Figure V provides an illustration of this first phase of results delivery.

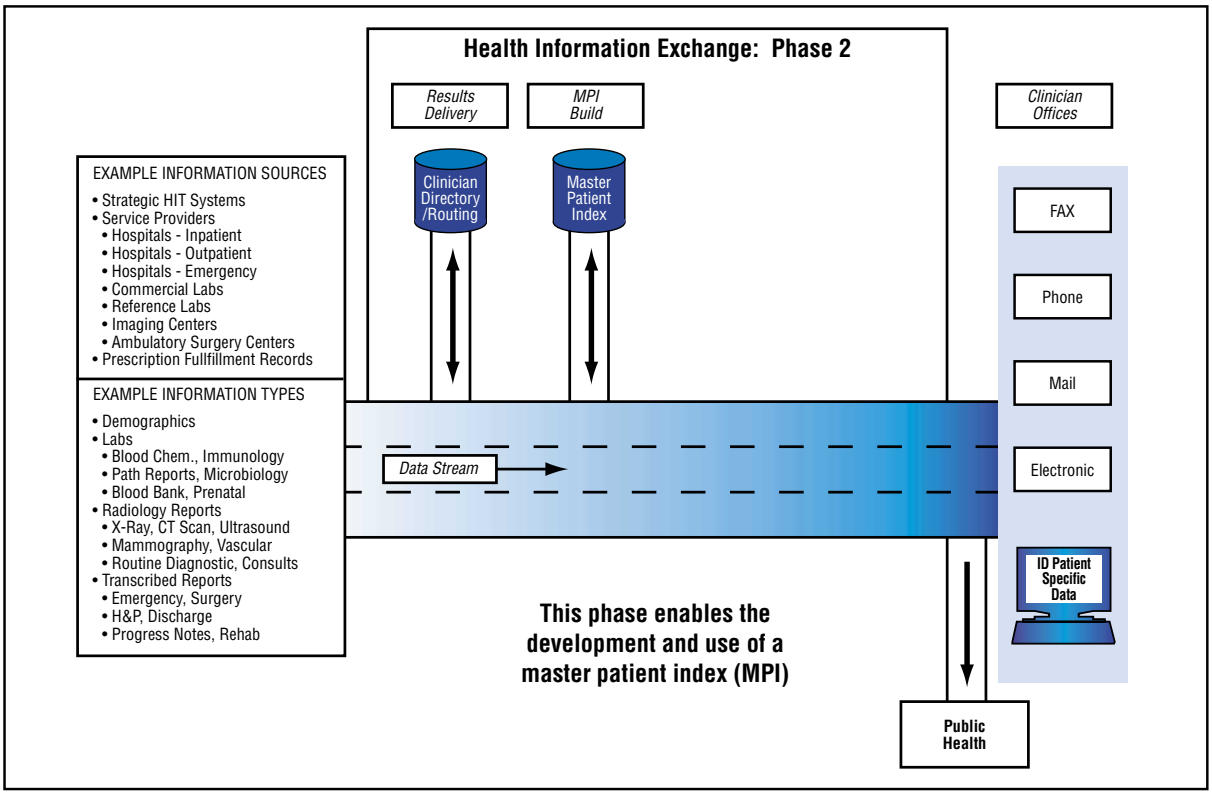
Figure V: First Phase for Results Delivery



The second component to be developed will likely be a master patient index (MPI). Again, data will be gleaned from the transaction and additional information will likely be requested to enhance the index. Data standards will be followed in creating the MPI.

The index is of utmost importance in that it a) enables the location of data about the patient and b) is required to connect data about the patient from various sources. Figure VI provides an illustration of this second phase of results delivery.

Figure VI: Second Phase for Results Delivery

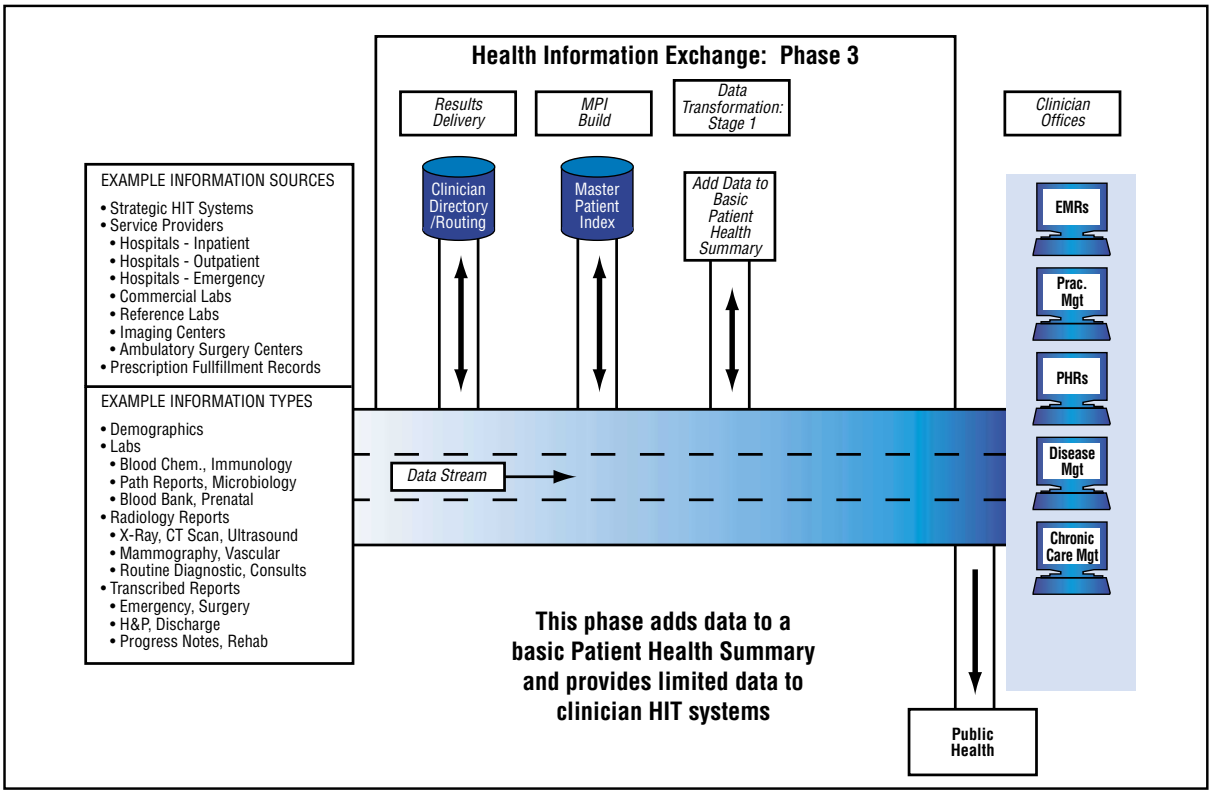


After the first two components are developed, the service will break down the lab and other clinical results into usable and shareable data that follow industry and national standards. This process, called data transformation (or normalization), is a key step in providing important clinical information and interfaces necessary for populating a patient health summary and, finally, comprehensive electronic health records.

An enormous amount of work will be required to convert the data stream into useable information. It will be a large and difficult task. Although many labs and others are already using the current industry standards, they are afforded much variation in implementing the standards.

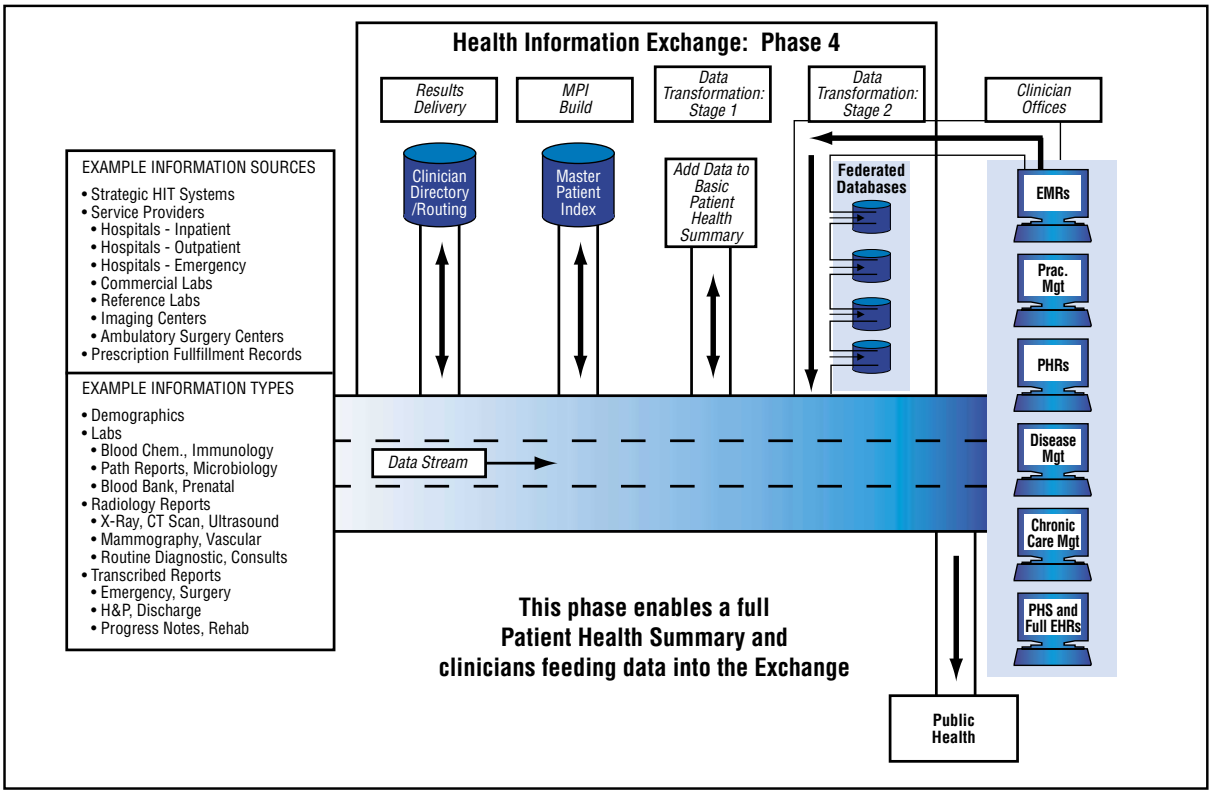
Once the data is standardized, it will be used to add information to a basic patient health summary. The patient health summary will be continually enhanced as data is transformed into shareable information. In addition, electronic interfaces that enable the seamless passing of data to the clinicians will continue to be developed. With these in place, the results delivery service can begin passing data into various HIT systems, including electronic medical records, practice management, patient health records, chronic care management, disease management, etc. Furthermore, more comprehensive data will be provided to public health systems. Figure VII provides an illustration of the third phase.

Figure VII: Third Phase for Results Delivery



In addition to continuing the work of transforming the data, the next task is to have clinicians share data that they created about the patient with other treating providers. This is important to the final goal of sharing health information statewide. There are multiple ways clinicians' information can be shared. It will likely be determined by the organizers of specific medical trading areas in conjunction with the statewide governance body in future phases of the *Roadmap*. Figure VIII provides an illustration of the fourth phase.

Figure VIII: Fourth Phase for Results Delivery



Results delivery services and other related activities will be developed within the context of a medical trading area (MTA). An MTA is usually a geographic area based on where a population cluster receives its medical services. It is also an area where groups of physicians, hospitals, labs, and other providers serve a geographic-based population of consumers. An MTA can be a metropolitan or rural area. The medical service providers or subsets of providers are often organized either formally or informally, and many are exploring projects that will enable them to share patient data.

Statewide Patient Record Locator

Ultimately, the central governance body will develop a patient locating service available through the statewide Web portal where providers with legal access will be able to obtain all appropriate medical data for their patients, regardless of the data's location in Arizona. The patient record locator will search the MPIs of MTAs. As the central governance body develops this capability, it will ensure that all appropriate data-sharing agreements are in place, along with all security controls and auditing functions.

Secured Messaging

Another priority identified by the *Roadmap* development process was the need for secured messaging between clinicians. This will enable timely and confidential communication between providers about a patient. This will be developed by leveraging communication tools that doctors are already familiar with, but those communications will go through a secure infrastructure that protects the data during transmission. The infrastructure developed for secured messaging will be leveraged for other services developed, as outlined in the *Roadmap*.

Public Health Alerts/Queries

Epidemics come and go, drugs and medical devices are recalled, and problems as diverse as water contamination, bioterrorism, or heat waves may have impacts on the health of thousands or millions of people. Public health agencies now rely on slow and inconsistent ways of receiving information about such problems. In addition, some agencies have a difficult time

disseminating clinical recommendations so that clinicians can use them to prevent illness and injury. As electronic systems permit automated reporting of surveillance information to public health authorities, facilitating alerts and clinical decision support, problems can be detected earlier and addressed rapidly by the entire health system. As the HIE infrastructure is implemented and earlier products are developed, public health capabilities will incrementally increase and the additional capabilities of alerts and queries will be addressed.

Personal Health Records

Personal health records permit patients to view, carry, and, in many cases, add to electronic documents containing their own important health information such as allergies, immunizations, and medication lists. Such records can serve various functions. At the simplest level they may facilitate providing information to clinicians, but they may evolve to help patients benefit from electronic health advice personalized to their own medical information (e.g., tailored to the medications a patient takes). Some records are created by patients; others are exported from records maintained by insurance plans or clinicians. There is now little standardization among the various personal health record formats, so they cannot electronically import or export information from different electronic medical records on a routine basis. While personal health records are currently products in some HIT solutions, it is recommended that a more comprehensive statewide approach to personal health records be addressed during later phases of *Roadmap* implementation.

Telecommunication Broadband and Last Mile Issues

A statewide electronic health information system depends on high-speed broadband connectivity between all points on the health network. But in the rural communities of Arizona, consistently available capacity does not exist in many areas. Broadband is defined as two-way communication of voice, video, and data at volumes of at least 1 megabit per second (Mbps). Broadband is available in only about half of the rural communities with a population of more than 500. Communities with fewer than 500 people have even less opportunity for broadband infrastructure because traditional models of broadband build-out have always depended on higher population density. The lack of broadband for rural healthcare providers will hinder their participation in the full implementation of Health-*e* Connection.

A number of organizations have committed to the ubiquitous availability of broadband across the state. The Governor's Council on Innovation and Technology (GCIT) recently established the Communications Infrastructure Advisory Committee (CIAC) to assume a leading role and center of influence to shed light on and help solve issues causing broadband disparities and deficits. The Arizona Telecommunications and Information Council (ATIC), the Arizona Technology Council (ATC), the Southern Arizona Tech Council (SATC), and the Greater Arizona eLearning Association (GAZEL) are addressing broadband availability. Because broadband is such a basic component of economic development, many business groups are also involving themselves in the discussions and issues.

The statewide governance organization will work closely with organizations seeking to resolve the broadband availability issue. Because of the close working relationship between Health-*e* Connection initiative and GITA, coordinating with CIAC and ATIC is relatively easy.

One way the *Roadmap* transition and governance bodies can assist in the discussion is to help identify where broadband deficits exist. Just identifying and uniting the various segments of the demand into a common voice can often create sufficient anchor tenancy for vendors to take notice and action. Demand aggregation is a major policy initiative promulgated by GITA other telecommunications advocacy groups.

Other Projects and Opportunities

Although some very specific milestones and projects are laid out above, this should not be seen as precluding any other projects or techniques that might be used as the *Roadmap* is developed. The *Roadmap* is developed specifically to take advantage of new ideas, changes in technology, and opportunities that may present themselves.

In fact, it is anticipated that various projects in the mid to latter stages of the *Roadmap* will use the HIE components developed in the early stages. For example, decision support capabilities, oral health functions, ePrescribe, integrated clinical/billing information flow for preauthorization and claims, and many other projects will most likely become feasible for implementation.

It is also recognized that changes in priorities may change because of changes in the economy, political climate, and other areas. While the focus has been on clinical data, the *Roadmap* is flexible enough to change gears and refocus efforts through the direction of the statewide governance body.

VI. Privacy and Security

A variety of federal and state statutes and regulations affect the formation of an e-health information exchange in Arizona. These include federal and state laws on medical record confidentiality, consumer rights, medical record administration, telemedicine, electronic signatures, fraud, abuse, and antitrust.

One of the legal challenges Arizona will face is to ensure that the health information included in an e-health information exchange is confidential and secure. For an e-health information exchange to be successful, consumers must trust that their health information will be kept confidential. Rigorous confidentiality protection for the health information handled by an e-health information exchange is essential to the long-term success of the mission.

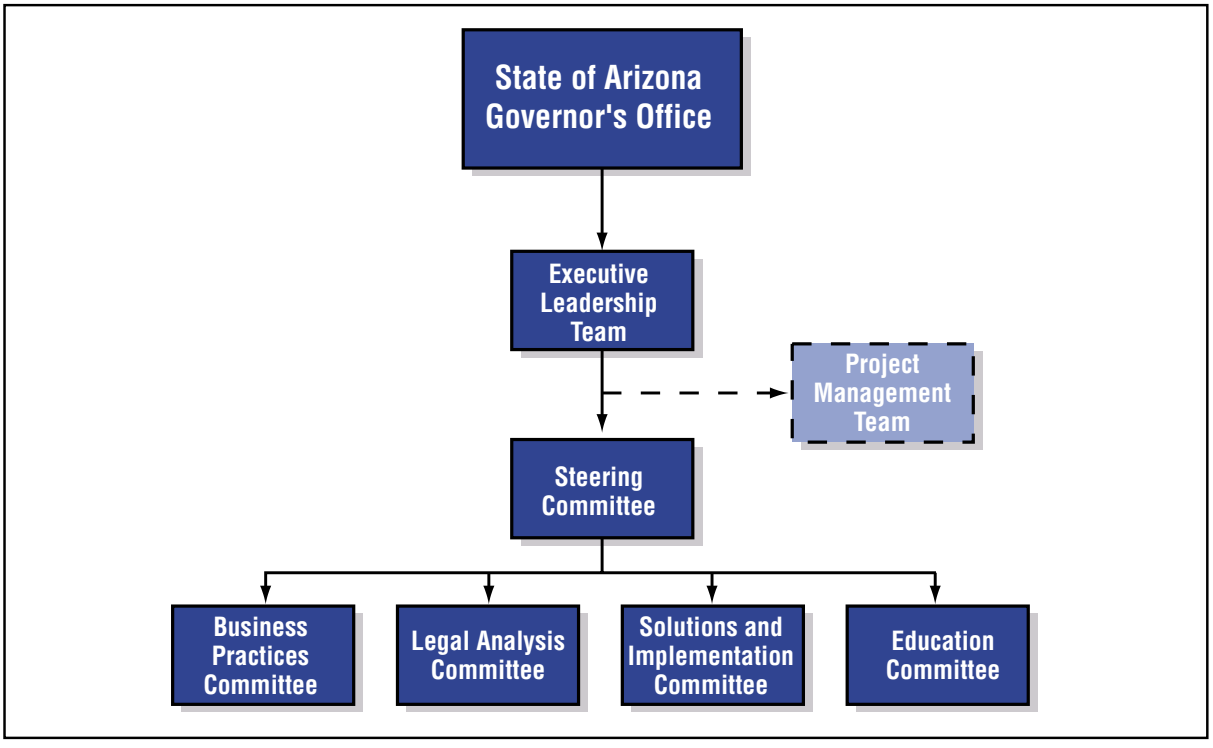
The resolution of many of these challenges will depend greatly on how the e-health information exchange is structured, the type of e-health information to be included, the types of participants in the exchange, and the reasons participants access the exchange. For example, many of these issues will be resolved differently if the exchange involves only limited information, such as medication information or a patient health summary, versus the statewide sharing of health information.

A. Arizona Health Information Security and Privacy Collaboration

In an effort to address the privacy and security issues that will arise during *Roadmap* implementation, the transition effort will leverage the process outlined in Arizona's response to the request from the U.S. Department of Health and Human Services and the National Governors Association for proposals to create a Health Information Security and Privacy Collaboration. The purpose of the Health Information Security and Privacy Collaboration is to identify barriers to e-health exchange in state privacy and security business practices and state laws and regulations, and to suggest methods of alleviating those barriers and encouraging harmonization of privacy and security practices to encourage e-health data exchange.

The Arizona Health Information Security and Privacy Collaboration (AzHISPC) structure (Figure IX) will

Figure IX: AzHISPC Organizational Structure



operate with functional oversight by the Health-*e* Connection Steering Committee. The Steering Committee will be assisted in this effort by four working groups: the Business Practices Committee, the Legal Analysis Committee, the Solutions and Implementation Committee, and the Education Committee.

B. Business Practices Committee

The Business Practices Committee will assess variations in organization-level business policies and practices related to the privacy and security of health information, and categorize them as barriers, best practices, or neutral with respect to interoperability.

C. Legal Analysis Committee

The Legal Analysis Committee will assess applicable privacy and security laws, regulations, and court cases to identify legal sources of barriers to sharing health information statewide. The group will be tasked with reviewing the barriers uncovered in the business policy assessment conducted by the Business Practices Committee and mapping those barriers to applicable privacy and security legal requirements. Members of the Legal Analysis Committee will also work with the Solutions and Implementation Committee (defined below) to ensure that laws are accurately and consistently interpreted throughout the process of formulating solutions, planning, and implementation. In addition to the responsibilities outlined above, the

Legal Analysis Committee will also be responsible for assisting the transition team in answering the legal challenges that arise during the transition phase. (See the Legal Challenges section.)

D. Solutions and Implementation Committee

The Solutions and Implementation Committee will review the assessment of variation of state laws, business policies, and legal requirements identified as barriers by the Business Practices Committee and the Legal Analysis Committee. The committee will develop an implementation plan to recommend policies that are consistent with federal and Arizona laws and will recommend any legislative or regulatory change necessary to reduce state law barriers to e-health data exchange.

E. Education Committee

This committee is expected to conduct outreach and educational sessions about the privacy and security issues involved in e-health data exchange. The committee will also direct other e-health exchange projects to collaborate with regional and national educational efforts as needed.

It is anticipated that the AzHISPC will continue for one year, as outlined in the HHS grant proposal and also as structured in the overall transition plan of the *Roadmap*. Once the governance organization is established during the first year of the *Roadmap*, the governance organization will be responsible for addressing privacy, security, and other legal challenges.

F. Legal Challenges Related to Privacy and Security

The e-health information exchange faces four significant challenges:

1. How will the e-health information exchange address consumers' control over their own health information?
2. How will the e-health information exchange handle "special" health information that has greater confidentiality protection?
3. How will the e-health information exchange handle minors' health information?
4. Who will have access to the e-health information in the exchange and for what purpose?

Challenge 1: How will the e-health information exchange address consumers' control over their health information?

E-health information exchanges across the country face the difficult task of determining how much control the individual consumer will have over his or her health information in the e-health information exchange. On the one hand, consumers legitimately want control over their own health information and want the right to choose whether to participate in a health information exchange.

On the other hand, seeking consumer consent before including health information in the e-health information exchange may mean that an individual consumer may not have the opportunity to consider including his or her information before that information is needed. For example, the person may be in a car accident and treated at an emergency department before the person has the opportunity to opt in to the system, so that person's information will not yet be available electronically to the emergency care providers. In addition, seeking consent of consumers will be an administratively difficult task and may pose substantial expense in implementing the system. Finally, permitting consumers control over participation will diminish the effectiveness of the information exchange in addressing important public concerns, such as using the information in the exchange for bioterrorism surveillance or to alert healthcare providers and public health officials to the beginning of a potential pandemic.

There is no easy answer to this challenge. Moreover, the balance between these positions changes, depending on what type of information is included in the exchange, who has access to the information in the exchange, and for what purposes the information will be available. For example, most consumers may be willing to include medication information in the exchange without consent, but may want the right to consent if a full-blown interoperable electronic health record is created. Similarly, some consumers may be willing to participate in the system if it is accessed only by physicians and hospitals for treatment purposes, but want to authorize access by health plans for purposes unrelated to paying claims for their healthcare.

Weighing the public policy issues above, the e-health information exchange has the following options:

- Seek consumers' consent to include their health information in the e-health exchange.
- Provide consumers the right to opt out of having their health information in the e-health exchange.
- Include all consumers' health information in the e-health exchange.

The Legal Analysis Committee will assist in determining the appropriate option for each e-health data exchange project in the *Roadmap*.

Challenge 2: How will the e-health information exchange handle "special" health information that has greater confidentiality protection?

Some types of health information have greater confidentiality protections than are found in the federal Health Insurance Portability and Accountability Act (HIPAA) Privacy Rule, which forms the federal "floor" of confidentiality protection. For example, federal and Arizona laws related to communicable disease, genetic testing, mental health, and alcohol and substance abuse treatment information permit fewer types of uses and disclosures of health information without consumer consent than does the HIPAA Privacy Rule. One of the most challenging decisions facing the e-health information exchange will be how to handle this information. The e-health information exchange has a variety of options:

- The e-health information exchange could exclude communicable disease, genetic testing, mental health, and alcohol and substance abuse treatment information to provide greater confidentiality protection for that information. However, the exchange must examine whether this will be workable, given that this information (particularly communicable disease information) is integrated throughout medical information held by providers. Moreover, segregating that information means that it may not be available to healthcare providers, which may compromise the quality of care provided to the consumer.
- The e-health information exchange could include some sensitive information, but exclude other information that has the greatest restrictions on use and disclosure. For example, the e-health information exchange could include mental health information and communicable disease information (both of which may be disclosed for treatment, payment, quality improvement, research, and public health surveillance), but exclude alcohol and drug abuse treatment information held by federally assisted substance abuse treatment programs and genetic testing information (which may not be disclosed for these purposes without consumer consent). This

option may be workable, if providers holding genetic testing information and substance abuse treatment information can store that information separately from the e-health information exchange.

- The e-health information exchange could include the special information, but restrict the use of *all* information in the exchange to comply with the most restrictive laws. For example, the laws protecting special health information all permit disclosure of the information with consent. The exchange could seek consent to include an individual's information in the exchange, contingent on the individual's agreement to use and disclose all information for certain defined purposes. There are substantial downsides to seeking affirmative consent to include e-health information in the exchange, as explored in connection with the first challenge. Moreover, a consumer may wish all of his or her health information to be included in the e-health data exchange *except* alcohol and drug abuse treatment information; this option would thus force consumers to make a difficult choice between better quality of care and protection of more sensitive information.

- The e-health information exchange could determine a way to flag information that requires more confidentiality protection. This would alert providers that there is additional information in the system, but perhaps not allow access to this information without express authorization from the consumer.

- The e-health information exchange could ask the Arizona Legislature to amend laws to facilitate the e-health information exchange. For example, Arizona confidentiality laws might be amended so that *all* information is subject only to the restrictions in the federal HIPAA Privacy Rule. An alternative might be to reduce the amount of information subject to greater confidentiality restrictions. For instance, the communicable disease laws—which now protect information on all reportable diseases, including flu, measles, and mumps—might be amended to protect only communicable diseases that are stigmatizing to individuals, such as HIV/AIDS.

Challenge 3: How will the e-health information exchange handle minors' health information?

Minors have the right to consent to certain types of healthcare in Arizona, such as treatment for sexually transmitted diseases, HIV testing, alcohol and drug abuse treatment, and prenatal and other reproductive care. Minors also have the right to consent to *all* healthcare if they are emancipated, have been married, are homeless, or are in the military. While minors have the right to consent to healthcare and actually provide that consent, minors also have the right to control the health information related to that care and must authorize disclosure of that information to their parents or guardians. The e-health information exchange should determine how to satisfy the participants' legal obligations to protect minors' rights to control access to their health information. The exchange might consider the following options:

- The e-health information exchange might implement a mechanism for providers to flag information related to healthcare to which a minor consented, but that requires the minor's authorization for disclosure to parents or guardians.

- The e-health information exchange could exclude minors' health information from the system if that information relates to healthcare for which the minor has the right to consent (such as substance abuse treatment, HIV testing, and other types of specific healthcare). Excluding that information may have negative consequences if that information is significant to other treatment provided to the minor.

- The e-health information exchange could request the Arizona legislature to pass a law granting parents and guardians the right to see their children's health information, perhaps with exceptions to protect minors in cases of abuse or other circumstances. However, there are substantial policy reasons that counsel against this route, such as discouraging minors from obtaining treatment for sexually transmitted diseases or prenatal or reproductive care.

Challenge 4: Who will have access to the e-health information in the exchange and for what purpose?

For each e-health data exchange project in the *Roadmap*, the final challenge is to define who has access to the health information for that project and for what purpose. For example, it must be determined whether health plans and employer group health plans will have access to information in a patient health summary. This challenge is closely related to Challenge 1 on whether consumers will have the right to opt in or opt out of having their health information included in the e-health information exchange.

These four challenges — among others — are surmountable, but will require careful consideration based on the policy goals of the e-health information exchange, how the exchange is structured, the type of e-health information to be included, the types of participants in the exchange, and the reasons participants access the exchange.

VII. Finance

Funding for the Arizona Health-*e* Connection should be obtained from a variety of sources, depending on the function. This section considers the funding for HIE, HIT, and a central coordination organization. Each function requires a different approach. Recommendations for each function are listed in the sections below.

It is not necessary to invest large amounts of capital in a central organization to create a top-down funding structure for all Health-*e* Connection exchange activities. This is consistent with the proposed governance roles of the central organization. In fact, many projects will be funded on a case-by-case basis at a medical trading area level. It is anticipated that start-up funding efforts and possible sources for these regional HIE projects could be facilitated by the statewide organization to gain efficiency.

Finally, it is recommended that ongoing operational funding for the core MTA functions and central coordination organization applications be value driven, so that costs for ongoing operations are primarily borne by the organization(s) receiving benefit from the service. It follows that projects will be addressed when it makes economic sense to do so. A principal aim of the Arizona Health-*e* Connection is to create a sustainable business model with users paying for the products and services that they receive — which presumably will be less than what they pay today. As services that support information sharing are introduced and grow, so too will the required financial resource commitment and the complementary service revenues to offset the increased costs.

Costs presented in this section are estimates for the products, organization, and implementation envisioned for the Arizona Health-*e* Connection. They are based on similar products nationwide, research analysis, current level of discovery of the Arizona e-health landscape, and expert opinion. As the Arizona Health-*e* Connection is implemented, changes in scope will impact costing analysis.

A. Central Coordination Organization

A modest budget is recommended for the central organization to coordinate, facilitate, and standardize statewide efforts. As defined in the recommended governance structure for the Arizona Health-*e* Connection, the central organization is relatively small. It will provide staffing, implementation, and support for projects and services that benefit all organizations, making it difficult to assign value to specific organizations.

Since activities of the central organization are designed to promote the common good, funding should be obtained from a central source or sources. Options could include grants and donations, state funds, in-kind donations of staff, and transaction fees. Items such as a secure network, secure messaging, Web portal, clinician directory, and the patient health summary application should be funded centrally. The approximate annual amount of central coordination organization funding required is $3 million to $4 million.

B. Health Information Exchange

The first key HIE service to establish a funding stream is a medical trading area-wide results delivery service, which provides physicians with a single source to order clinical services, generate and confirm referrals, and receive clinical results. The clinical messaging service delivers clinical reports to the treating providers electronically, thereby reducing costs for the healthcare data provider and improving efficiency and utility for the recipient. This service is envisioned to a) be free of charge for the ordering physician and the "copy to" physician, and b) require the organization receiving the order and sending the result to pay the bulk of the costs to the MTA utility on a monthly basis for the service its receives. It is assumed that when the service is completely operational that the current more manual, less reliable results delivery and order processes would be discontinued and that the costs associated with them would be reduced or eliminated. It is further assumed that service levels would noticeably improve for customers and their patients.

The healthcare data providers send clinical reports electronically; the clinical messaging software converts them into a consistent, easy-to-use report format and delivers them to the treating provider. The intent is for new, fee-based services to replace paper-based reports now delivered to physicians by fax, postal mail, or courier. Phone call requests for status tracking information are reduced. Costs to send and receive clinical results are reduced (see Appendix F: Business Case for a discussion of benefits realized at Sonora Quest Laboratories as a result of implementing an electronic system).

Based on cost figures from other results delivery networks, Arizona can anticipate development costs of about $1.5 million to $3 million per one million people (population) over the first two years.

The proposed fees generated by the clinical results delivery service are critical to support the ongoing operations of the MTA and provide expansion of additional data-exchange services such as the MTA master patient index and data transformation (normalization). The cost to maintain each results delivery network and provide these expanded data-exchange services is about $2.5 million to $4 million per year per one million people (population), based on figures from other results delivery networks.

Studies to determine primary beneficiaries of a results delivery service have been initiated. It is believed that information source providers such as labs, hospital inpatient, outpatient and emergency services records, ambulatory surgery centers, imaging centers, etc., have been identified as beneficiaries of the service in the early work of the Clinical and Financial Task Groups. The extent of the benefits and identification of other beneficiaries will be thoroughly studied in future phases of each project.

Service fees may be charged to other organizations legally authorized to receive results on behalf of the patient, such as personal health record (PHR) entities, chronic care improvement programs (CCIP), and disease management (DM) organizations in or outside health plans, insurers, employers, and associations. Fees may be generated for these services based on the value of providing daily batches of information about their patients to their systems (PHR, CCIP, DM) on a per-patient basis.

The patient health summary is a special case as it relates to the decision to develop and sponsor the service to clinicians, care coordinators, emergency physicians, and other authorized users. The beneficiaries of this service, if built for the medical trading area or the central coordination organization, are most frequently the patients. It serves patients well in most cases involving their expressed need (a visit or a call) for medical care. Surveys have shown that in most cases, patients would like to have the clinician as fully aware of their previous conditions and clinical findings as possible. Therefore, the patient or the patient's financial sponsor or guarantor should fund the operation of the patient record summary system that provides this service. Thus, the costs of the system that provides the patient health summary, adds new patients, and provides for the addition and maintenance of clinical event reports, orders, prescriptions, and other records, and the record matching and integrity should be paid by those who benefit.

A financing mechanism for such a system includes a wide variety of financing approaches and formulas. An example is one that levies a fee for each person on the database each month and for the addition of more clinical data and the underlying service support. Thus, a base fee and an index of the degree of value for the additional information for each patient could be charged each month to the guarantor or sponsor of the person/patient. Past proposals have set base fees of between 5 and 10 cents per month, with the index raising the fee to 25 to 50 cents per patient per month at that index level.

The proposed strategy to select appropriate early applications that are easy for healthcare providers to use establishes the foundation for building toward a more comprehensive set of functions, thereby facilitating and expediting the transition of patients, providers, and payers to the benefits that HIT and HIE offer in improving health and healthcare delivery in Arizona. HIE projects provide support to HIT EMRs (interfaces), and HIT EMRs and ePrescribing provide support to HIE projects as patient health summaries are exchanged.

C. Health Information Technology

As envisioned in the HIE section, all clinical practices will receive certain free, basic-level HIE services. Some MTA organizations have offered very low threshold entry fees when referrals or secure messaging services were offered ($10 to $25 per clinician per month).

Figure X lists the proposed basic-level services for clinicians participating in an MTA.

Figure X: Basic-Level Services
Order/receive lab/radiology results Results viewing/printing Physician portal $0 per month per physician

Additional HIT costs should be borne by the organization that is the primary user of any given HIT system. In most cases this will be the clinical practice. Some HIE projects will most likely provide basic HIT extensions to their service offerings to clinicians and other service providers. These extensions can be found in MTAs like HealthBridge and Taconic's MedAllies and includes services such as practice-wide inbox and messaging, referrals, ePrescribing, dictation/transcription, basic charting (forms and templates) or progress notes, patient health summary, and scheduling. These services in many cases are integrated with the HIE software service or interfaced to make it appear seamless. The fees for these services are usually charged as a monthly subscription with transaction modifiers.

Many clinical practices will opt to fund their own deployments of HIT systems. According to the most recent Health Services Advisory Group (HSAG) survey, about 14 percent of Arizona physician practices already have invested in HIT systems and an additional 25 percent plan to invest in the next 12 months. Health and hospital corporations were not surveyed, although their percentage adoption rate of HIT is believed to be even higher. Incentives (such as tax credits, low-cost financing arrangements, and potentially others) should be explored to encourage additional HIT adoption.

An alternative approach for clinical practice will be to purchase, via a subscriber financial model, use of a central system to handle a subset of electronic medical record (EMR) functions. In effect, this is an "EMR-lite" offered through a Web-based system. This approach, commonly used for various business applications via the Internet, is also known as an application service provider model (ASP). If this approach were contemplated, collaboration on interface development and maintenance contracts should be considered, because there are considerable cost and time savings. This approach would also reduce risks of failure from collaboration, interface sharing, or joint development approaches.

The central coordination organization or the MTAs could develop and offer EMR-lite functions. It is also believed that certain vendors would be interested in competing for this work, if outsourcing the function is determined to be appropriate. In addition, it is possible that multiple outsource vendors could develop EMR-lite applications and market the service to clinical practices on a case-by-case basis. For this to occur, outsourced vendors must be required to adhere strictly to Arizona Health-*e* Connection interoperability standards.

Based on a survey of similar services offered nationwide, it is believed that EMR-lite functions could be offered to clinical practices on a tiered cost schedule. Figure XI lists an approximate cost schedule for additional EMR-lite functions.

Figure XI: Costs per Service Levels per Clinician

Intermediate Level of Services	Premium Level of Services
Basic services plus: ePrescribing (price based on number of formularies needed) Messaging/task management Drug-to-drug, drug-to-allergy alerts, etc. $30 to $75 per month per clinician	Basic/intermediate services plus: Referrals Charge capture/right coding Decision support (alerts, best clinical practices, reminders, facilitate diagnoses) Patient education $100 to $250 per month per clinician

D. Cost Summary

The following (Figure XII) summarizes cost estimates for the Arizona Health-*e* Connection as presented in this *Roadmap*. Ongoing and startup costs for HIE, HIT, and the central coordination organization are presented.

Figure XII: Summary of Cost Estimates for Arizona Health-*e* Connection

	Startup Costs	Ongoing Costs/Year
Central Coordination Organization	$3.0 - 4.0 M (year)	$3.0 - 5.0 M*
HIE	$1.5 - 3.0 M (2 years) per 1 million people (population)	$2.5 - 4.0 M per 1 million people (population)**
HIT	0	$3000/clinician***

* = partially self funded (Patient Health Summary)

** = self funded (Results Delivery)

*** assumes EMR-lite premium subscription

VIII. Governance

A. Background

Governance is the process by which an organization establishes strategic direction, makes major decisions, and remains accountable to its stakeholders. HIE involves cooperation, collaboration, and compliance from a large number of diverse participants (e.g., clinicians, health service providers such as hospitals and laboratories, employers and purchasers, health plans, health departments, and even patients themselves). Securing the trust and active engagement of stakeholders while achieving the goals of the Arizona Health-*e* Connection *Roadmap* requires a representative, effective, and resilient governance process.

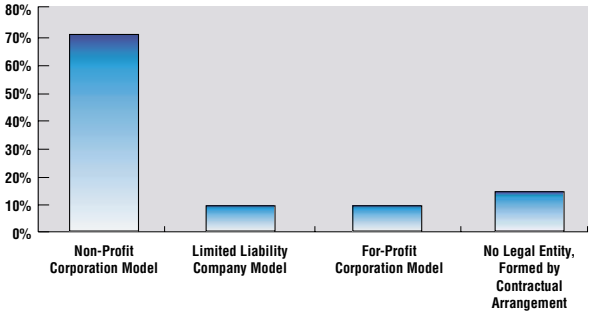
There is no single correct organizational structure for health information exchange efforts. Various models include government authorities, membership and non-membership nonprofit organizations, private for-profit firms, cooperatives, and contractual agreements with an academic institution, among others.

A 2005 survey conducted by the eHealth Initiative found that health information exchange efforts are maturing and some communities have developed multiple corporations to accomplish various parts of their missions (e.g., adding a wholly owned subsidiary limited-liability corporation to a nonprofit corporation). For initiatives that have created a formal legal organizational structure, 70 percent use a nonprofit corporation model (Figure XIII).[2]

The survey also shows a clear shift toward leadership by a neutral, multi-stakeholder entity, with 55 percent of respondents indicating that their initiatives are led by a multi-stakeholder organization.

Arizona's model establishes a clear mission, organizational principles, and governance structures to ensure sustainable adoption. One of the most important aspects of governance is coalition and trust building among the stakeholders.

Figure XIII: Nature of Health Information Exchange Initiatives



B. Getting Started

Discussions with key stakeholders, Steering Committee members, Governance Task Group members, and public meeting attendees indicated a strong preference for health information initiatives to be led by a neutral, diverse, and trusted governing body. Many other successful initiatives have come to the same conclusion. Given the fragmented and highly competitive nature of our healthcare system, building trust among these diverse entities requires a great deal of process and attention.

Although there is need for statewide leadership and coordination, much of the work will be done at the local and regional levels. Most of the day-to-day benefits of information exchange accrue inside individual medical trading areas. This is where stakeholders have the greatest need for one another's information and enjoy the trust enabled by face-to-face interaction. From both business case and governance perspectives, early exchanges and innovation are most likely to emerge at the local and regional levels.

Arizona has a good track record in developing successful and sustainable public-private collaborations, the structure proposed for Arizona's Health-*e* Connection initiative. The involvement of consumers is critical to the success the *Roadmap* implementation. To ensure buy-in, consumers will be integrated into existing and planned committees and task forces.

C. Governance Task Group Recommendations

The following Governance Task Group recommendations are detailed below:

- Mission statement
- Model governance structure for a statewide e-health information infrastructure
- Roles and responsibilities of a governance structure

Mission Statement

"To facilitate the design and implementation of integrated statewide health data information systems that support the information needs of consumers, health plans, policymakers, providers, purchasers, and researchers and that reduce healthcare costs, improve patient safety, and improve the quality and efficiency of healthcare and public health services in Arizona."

Statewide Governance Model

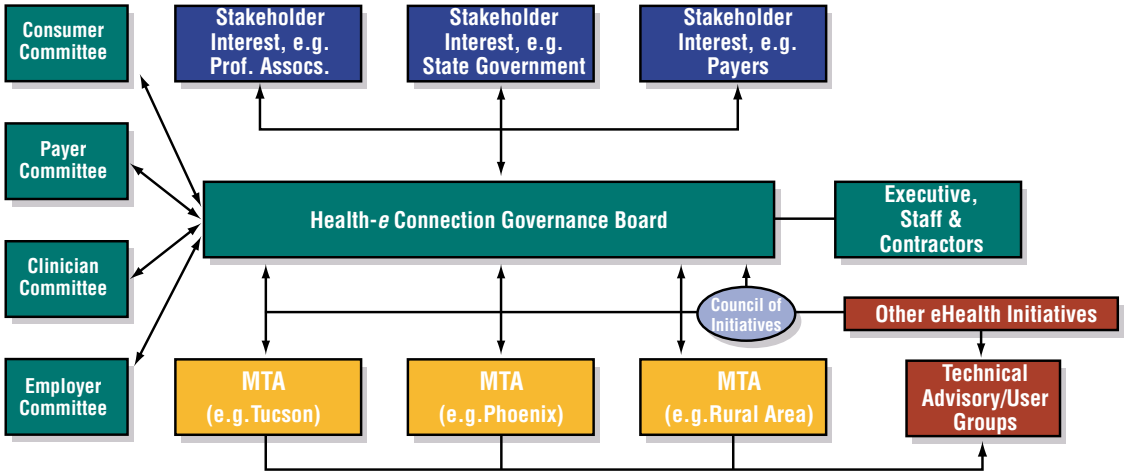
To accomplish the mission of the Arizona Health-*e* Connection initiative, a governing body is to be established that will:

- Include representatives of critical statewide stakeholder interests (e.g., government entities)
- Include representatives of local medical trading areas
- Promote interoperability and national standards
- Ensure security and privacy needs are met
- Allow those who contribute data to have a say in how data is used
- Be positioned to accept and spend both government and private funds
- Promote solutions that reach across geographical, demographic, and organizational boundaries
- Effectively attract and retain participants
- Clearly define roles and responsibilities of the public-private collaborative

A statewide governance body is needed to develop a uniform approach to all aspects of *Roadmap* implementation. It is recommended that a statewide nonprofit Health-*e* Connection corporation be created to provide leadership, negotiate standards, and encourage collaboration. This organization would strategically collect and distribute funding, align financial incentives, develop statewide technical infrastructure when needed, and advocate for needed policy changes.

A private-public, nonprofit organization is recommended to serve as a coordinating body, to provide leadership and guidance, and to drive collaboration. The organization could also assume key roles in areas such as providing funding, aligning financial incentives, developing technical infrastructure, and driving needed policy changes. It is recognized that no current organization fulfills these requirements. The adopted governance model is propelled by local and regional initiatives supported by a statewide process. The model consists of a governance board, board committees, full-time supporting staff, a Council of Initiatives, and technology advisory groups. The proposed structure is depicted in Figure XIV.

Figure XIV: Proposed Arizona Governance Structure



Governance Board

A board will be established to be the core entity of the governance body. It will maintain and refresh the coherent vision, strategy, and outcome metrics underpinning the *Roadmap*. It will provide advocacy and build trust, buy-in, and participation of major stakeholders. In addition, the board will assure equitable and ethical approaches in implementing the *Roadmap*. It may also raise, receive, manage, and distribute state, federal, and private funds. It will prioritize and foster interoperability for statewide and sub-state initiatives. Finally, it will implement statewide projects and facilitate local and sector projects.

The concept of a membership dues-driven, nonprofit organization was considered but discarded because the Health-*e* Connection corporation must represent all interests, regardless of whether individual organizations see fit to participate at any particular time. Instead, a small but committed board must be empowered to act aggressively on behalf of all state residents while balancing the interests of critical stakeholders. Similarly, the concept of a para-state organization (such as a government authority) was considered but discarded, given the need to assure substantial investment and ownership by both the public *and* private sectors, and the need for agile decisions and actions to implement a complex, ever-changing task.

It is recommended that the governing board consist of 15 to 20 members.

Statewide Stakeholder Representatives

The governance board will contain representatives from critical statewide stakeholder interests including:

- Employers
- Health plans/payers
- Healthcare clinicians
- Arizona state government agencies
- Consumers
- Public health
- Laboratories
- Pharmacies
- Hospitals

In some cases, associations can appoint representation of interests statewide. In other cases, it will be necessary for the Governor (e.g., government agencies) or existing board members (e.g., consumers) to select individual board members to represent particular stakeholder groups and to ensure that the board represents a diverse cross section of Arizona residents.

The bylaws of the Health-*e* Connection corporation will need to detail these selection processes. This will involve an additional level of detail and would be negotiated by the Transition Team discussed below.

MTA Representatives

Because the participation of statewide and regional (MTA) exchanges is crucial, each MTA health information exchange would also be represented on the board. MTA health information exchanges are distinguished from other types of e-health projects by being:

- A single entity for exchange of clinical information inside a geographic medical trading area on all patients, regardless of payer or provider system
- Open to all clinicians and service providers in the MTA who agree to necessary participation conditions
- Committed to collaborating with the Health-*e* Connections board and other MTA health information exchanges on statewide information exchange
- Committed to adopting statewide policies and standards
- Governed by structure that permits participation by local clinicians and service providers
- Able to assume the roles and responsibilities detailed in Figure XV

Board Committees

A modestly sized board cannot include representation from all important stakeholder groups and contain all the technical, clinical, legal, and policy expertise required. Board committees will be established to broaden both input into and expertise on the governance process. Each committee will be chaired by a board member.

Board committees will permit recruitment and input by an even broader set of stakeholders, as well as content expertise in areas such as clinical problem-solving, technical architecture, standards, finance, and confidentiality and security concerns. Four standing committees will represent clinicians, payers, employers, and consumers. In addition, technical advisory/user groups and a Council of Initiatives will address specific implementation issues confronting health information exchange initiatives.

Full-Time Staff

The Health-*e* Connection board should be supported by a full-time executive and supporting staff. Contractors may also be used to supplement the skills of the full-time employees. The staff would execute strategic, business, and technical plans. Staff would also coordinate day-to-day tasks and deliverables, including establishing contracts and participation with local and regional initiatives.

Council of Initiatives

Participants of the many e-health initiatives under development in Arizona (including those operating on a scale below the MTA level) could join a Council of Initiatives to help identify obstacles and common solutions for future interoperability of information systems. The council would send representatives to the board to contribute expertise and advice. It would also help select representatives to technical advisory/user groups.

Technology Advisory Groups

Technology advisory groups will provide MTAs and other interested parties a forum to explore technical standards, policies, and solutions to common problems facing multiple MTAs (e.g., user identity management and secure messaging). From these discussions, standards, policies, and solutions will be proposed to the governance board. In addition, the advisory groups will be a forum to openly share knowledge and solutions across projects and the larger Health-*e* Connections community.

Roles and Responsibilities of Proposed Governance Structure

The following (Figure XV) summarizes the responsibilities of each entity in the above diagram.

Figure XV: Roles and Responsibilities of Proposed Governance Structure

Governance Role	Responsibility
Governance Board	• Develop vision, strategy, outcome metrics, and technical and business plans • Build trust, buy-in, and participation of major stakeholders • Assure equitable and ethical approaches • Approve statewide policies, standards, and agreements • Balance interests and referee or resolve disputes • Raise, receive, manage, and distribute state, Federal, and private funds • Foster interoperability for statewide and sub-state initiatives • Implement statewide projects and facilitate local/sector projects • Provide financial and legal accountability, compliance, and risk management • Educate and market
Statewide Stakeholder Representatives	• Be credible representatives of their sectors • Offer needed participation in decisions and projects • Offer expertise and advice
Medical Trading Area (MTA) Representatives	• Serve as subset of e-health projects working toward exchange, including all willing participants in a geographic area • Recruit and build trust, buy-in, and participation of project participants; implement projects • Send credible representatives to the Statewide Board • Select representatives to technical advisory/user groups • Provide financial and legal accountability, compliance, and risk management for their initiatives
Board Committees	• Broaden the number of stakeholder representatives involved • Provide content expertise in specific areas of concern to the board • Serve as standing committees representing clinicians, payers, employers, and consumers
Executive, Staff, and Contractors	• Execute strategic, business, and technical plans • Coordinate day-to-day tasks and deliverables • Establish contracts and other relationships with local and sector initiatives • Provide industry knowledge • Measure and report meaningful outcomes • Establish participation agreements • Provide fiduciary and compliance accountability
Council of Initiatives	• Serve as meeting place for all interested e-health projects, including those with a more limited scale than MTAs • Offer shared learning and recruitment into projects serving Health-*e* Connection goals • Select one or more representatives to Statewide Board to contribute expertise and advice • Help select representatives to technical advisory/user groups
Technical Advisory/ User Groups	• Serve as forums to explore and propose technical standards, policies, and solutions to common problems facing multiple MTAs (e.g., user identity management and secure messaging) • Propose standards, policies, and solutions to Statewide Board • Openly share knowledge and solutions across projects and larger Health-*e* Connections community

IX. Transition Plan

The transition plan explains how the *Roadmap* will begin to be implemented during the first 12 months. It lays out the process for establishing the statewide governance organization, implementing early stages of the HIE infrastructure, and partnering with strategic HIT systems or initiatives. The transition also requires activities of the AzHISPC organization dealing with privacy, security, and legal questions in implementing the *Roadmap*. For more information about AzHISPC and its activities, see the section on Privacy and Security.

The first activity during transition is to finalize the transition structure, which includes selecting interim leaders, obtaining commitments from the participants, identifying interim funding requirements, and obtaining the funding. Obtaining commitments from participants should take no more than one month. Identifying interim funding requirements and securing the funds must then occur to avoid a vicious cycle of inactivity and discouragement. Transition participants will focus on:

- Establishing the governance corporation, draft strategic and business plans, and model participation agreements
- Developing a practical strategy for statewide and MTA engagement in the Health-*e* Connection effort
- Implementing early statewide HIE infrastructure (e.g., the secure portal)
- Identifying and coordinating with current Arizona HIT initiatives
- Developing a marketing and education plan for *Roadmap* implementation

Statewide Governance Organization

Critical transition activities are to incorporate and define bylaws for the governance body and ensure that core board members are recruited and appointed. It may also be necessary to position the board to operate effectively by arranging for interim executive staff and required contractors.

Once the governance body is established, it will develop a detailed strategic and business plan. The business model needs to be flexible enough to evolve to support changes in the healthcare industry (e.g., pay for performance) and changes in the local community (e.g., local business leadership changes as the initiative gains momentum). It is impossible on day one or even in year one to say what the sustainable model will be. The Health-*e* Connection approach is to plan, implement, and continuously evaluate and refine the model.

Another early task for the governance body is to develop model participation agreements to govern how the individuals or entities granted access to the e-health information exchange may access, use, and release the data in the exchange. These agreements will need to address a host of issues, such as authentication of users, security requirements for participating systems to ensure confidentiality of the information, the reasons participating individuals and entities may access data in the exchange, who has the right to grant access to consumers, and who has the right to amend information in the exchange. The agreements also will need to address the difficult issue of allocating risk and liability through indemnification and insurance provisions, and how participants will be sanctioned or disciplined for misuse of the system. The development and negotiation of these participation agreements will be time intensive because they must reflect participant consensus on a wide variety of issues. Final agreements will be developed as the e-health data exchange projects are refined.

Strategy for Statewide Engagement

It is important to engage various regions and audiences in Arizona to implement the *Roadmap*. One of the first activities is establishing an Arizona map of medical trading areas (MTAs), including demographic information (population, numbers of providers of various types, etc.) and taking account of cross-jurisdictional questions (e.g., Mexico, Nevada, California, etc.). The map will also include overlays of demographic information, such as the HHS Indian Health Service, the U.S. Department of Veterans Affairs, and professional association membership. The maps will become a part of the communication plan and will also be posted on the state portal. The goals are to help everyone recognize the scale of what is happen-

ing, establish the base for a full licensee/provider directory over time, and demonstrate progress.

Once the MTAs are identified and described by the overlay maps, the transition team will identify a viable approach for engaging MTAs, including a template of requirements to establish a formal information exchange. The transition team will approach groups that are currently organized and assist them in establishing a formal data exchange within their MTA.

HIE Initiatives

An important objective of the transition plan is to maintain the momentum that Governor Napolitano created when she asked for the creation of the *Roadmap*. Part of the strategy is to quickly implement some of the early HIE initiatives, including the development of a secure communications infrastructure. The activities for establishing a secure communications infrastructure include:

- Setting up a participation structure (e.g., hospitals, labs, payers, and other organizations that will benefit) and developing consensus about overall technical approach
- Identifying potential suppliers for the technical approach
- Developing technical designs
- Selecting project approaches for viable technical designs, including cost projections and funding possibilities
- Developing a Web portal strategy. Activities associated with creating the strategy include:
    - Identifying potential suppliers
    - Developing a conceptual design
    - Developing a project approach
    - Identify portal operation support
    - Obtaining funding
    - Implementing the portal

Perhaps one of the more challenging HIE initiatives during the transition phase is developing an MTA results delivery strategy. This includes identifying guidelines for regional governance, oversight mechanisms, and results reporting. It will also include funding strategies and a guidebook to establish the service.

HIT Initiatives

An important strategy to implement the *Roadmap* is to leverage strategic HIT systems. During the *Roadmap* development process, some HIT systems were identified as having potential strategic importance to the *Roadmap*. There may be additional HIT systems that could be leveraged. Therefore, an early HIT strategy is to identify and work with HIT systems that will help move the goals of the *Roadmap* forward. Activities related to this effort include:

- Conducting an HIT/HIE survey or inventory
- Determining information to publish on the portal for HIT adoption
- Establishing ongoing liaison with identified HIT projects
- Obtaining funding and staffing as necessary

Marketing and Education Plan

The following marketing and education items are the responsibility of the transition structure for the Arizona Health-*e* Connection. These responsibilities will most likely be absorbed into the permanent governance structure after it is established.

The responsibilities listed are critical to maintain project momentum and to generate additional enthusiasm at local and regional levels. In addition, it is critical to maintain resources to respond to public inquiries and public relations opportunities.

Activities to be listed in the marketing plan include:

- Developing standard presentations
- Advocating key implementation components (when needed)
- Establishing and training a speakers bureau
- Establishing media contacts

- Developing a media plan
- Distributing a quarterly newsletter
- Assisting the Governor's office (as requested) in the release of the *Roadmap*
- Reaching out to key stakeholders (especially rural constituencies)
- Maintaining a contact database
- Partnering with existing groups such as Doctor's Office Quality–Information Technology (DOQ-IT), Health Information and Management Systems Society (HIMSS), and Arizona Health Information Technology Accelerator (AHITA) for additional marketing coverage

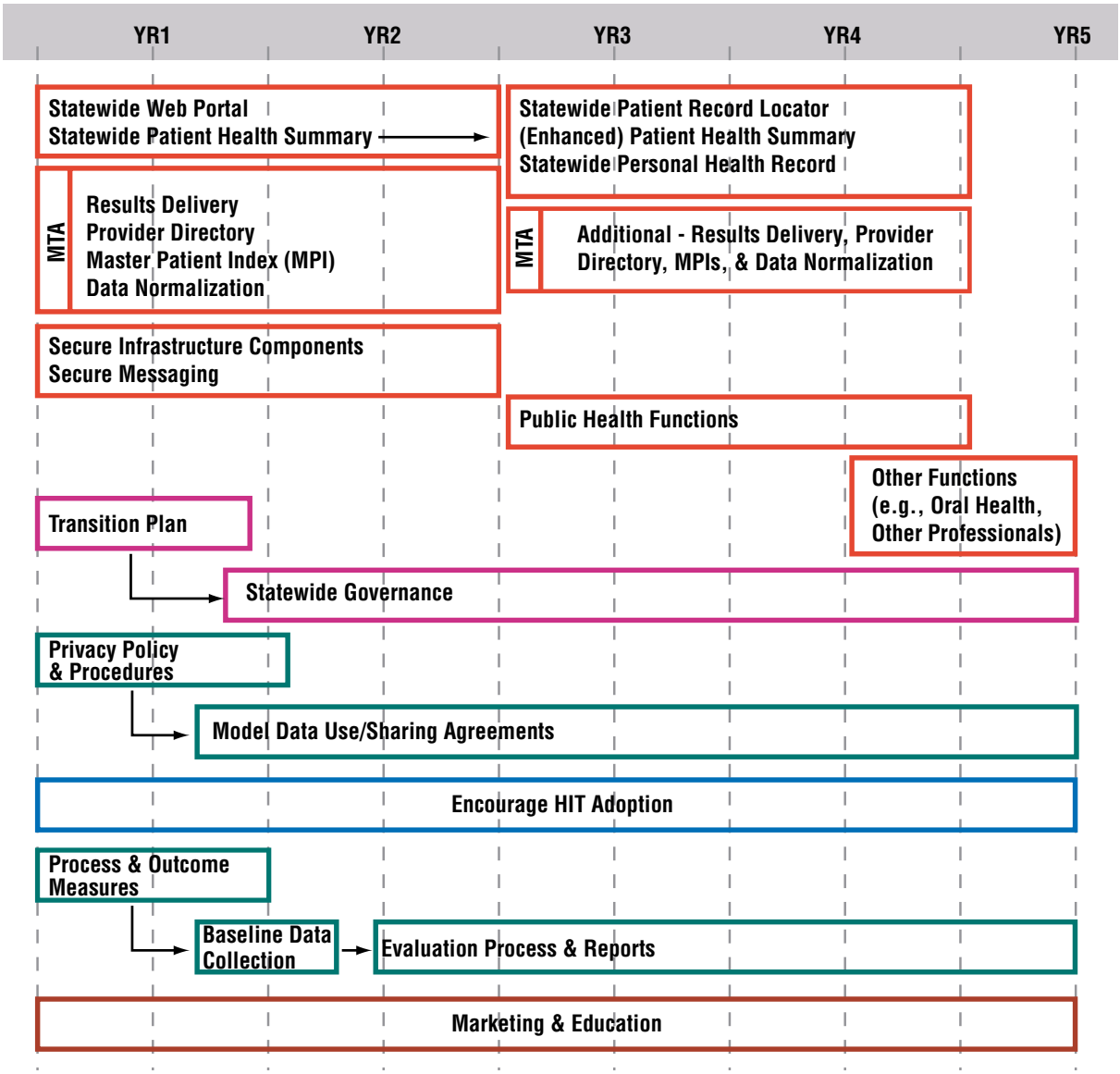
In addition to the marketing plan, an education plan needs to be developed to give specifics for participating in the initiative. Activities related to an education plan include:

- Organizing workshops for initial projects (such as results delivery)
- Assisting in coordinating grant and funding opportunities with statewide, regional, and local organizations
- Continuing to develop talent to serve as implementation leaders
- Supporting and exchanging industry knowledge such as lessons learned and best practices
- Assisting statewide, regional, and local organizations in obtaining assistance from national experts
- Advocating key implementation components (when needed)
- Developing materials to help communities and regions get started
- Expanding education opportunities by partnering with existing groups such as Doctor's Office Quality–Information Technology (DOQ-IT), Health Information and Management Systems Society (HIMSS), and Arizona Health Information Technology Accelerator (AHITA) for additional educational resources

X. Project Timeline

Roadmap implementation involves accomplishing many activities concurrently. In addition, some activities depend heavily on others. The following diagram (Figure XVI) provides a picture of the timing of activities in relationship to each other.

Figure XVI: Project Timeline



XI. Implementation Summary

The *Roadmap* contains actionable items that will enable Arizona to reach critical milestones on the road to fully sharing healthcare information throughout the state. Many specific activities will take place over the next five years to enable Arizona to exchange healthcare data statewide. The diagram on the preceding page shows a timeline of the most critical activities. The following chart (Figure XVII) highlights those same activities by year. Full implementation of these activities will enable Arizona to realize the benefits of electronic health data exchange and to be recognized as a national leader for its efforts to establish a virtually connected healthcare environment.

Figure XVII: Implementation Milestones by Year

Year	Milestones/Activities
1	• Establish Health-*e* Connection governance body • Develop statewide business plans • Develop model participation agreements • Identify and establish baseline measures of Health-*e* Connection outcomes • Identify and approach Arizona MTAs • Establish the first MTA information exchange with a results delivery service - Develop a provider directory - Begin a master patient index (MPI) - Begin data transformation • Develop Arizona's statewide Web portal with security infrastructure components • Pilot a basic patient health summary • Establish HIT adoption plan • Market and educate the healthcare community about Health-*e* Connection
2	• Provide guidance to first MTA information exchange for enhanced services • Establish other MTA information exchanges with results delivery services (including provider directories, master patient indexes, and data transformation) • Implement secured messaging • Obtain Health-*e* Connection outcome measurements • Encourage HIT adoption
3	• Establish and provide guidance to MTA information exchanges with results delivery services (including provider directories, master patient indexes, and data transformation) • Enhance the patient health summary with data from MTAs • Enhance public health functions • Obtain Health-*e* Connection outcome measurements • Encourage HIT adoption
4	• Establish and provide guidance to MTA information exchanges with results delivery services (including provider directories, master patient indexes, and data transformation) • Enhance the patient health summary with data from MTAs • Implement statewide patient locator • Develop statewide personal health record access • Obtain Health-*e* Connection outcome measurements • Encourage HIT adoption
5	• Enhance the patient health summary with data from MTAs • Add functions for oral health and other healthcare professions • Obtain Health-*e* Connection outcome measurements • Encourage HIT adoption

XII. Acknowledgements

Creation of the Arizona Health-*e* Connection *Roadmap* would not have been possible without the contributions of the following individuals. Their knowledge, input, assistance, and spirit of dedication and teamwork were essential to successful completion of Governor Napolitano's Executive Order. The content presented in this *Roadmap* is a direct result of literally thousands of hours of volunteered time.

Steering Committee

Co-Chairs:

Chris Cummiskey	Government Information Technology Agency
Beth Schermer	University of Arizona College of Medicine

Members:

Joe Anderson	Schaller Anderson
Reg Ballantyne	Vanguard/Abrazo Health Care
Betsey Bayless	Maricopa Health District
Bill Bell	Arizona Department Of Administration
Bruce Bethancourt, M.D.	Banner Health
Richard Boals	Blue Cross Blue Shield
Leslie Bromberg	Bromberg Consulting Inc.
Joe Coatsworth	Arizona Association of Community Health Centers
Benton Davis	United Health Care
Crane Davis	Arizona Pharmacy Association
Don Davis	Indian Health Service Plans
Jack E. Davis	Arizona Public Service
Mark El-Tawil	Healthnet
John Fears	U.S. Department of Veterans Affairs
Peter Fine	Banner Health
Susan Gerard	Arizona Department of Health Services
Bernard Glossy	Delta Dental
Wyllstyne Hill	Raytheon
Roger Hughes	St. Luke's Health Initiatives
Linda Hunt	St. Joseph's Hospital & Medical Center
Mark James	Honeywell Aerospace
Jack B. Jewett	TMC HealthCare
David Landrith	Arizona Medical Association

Celeste Null	Intel
Kathleen Oestreich	University Family Care/University Physicians Healthcare Group
Kathleen Pagels	Arizona Health Care Association
Sethuramen Panchanathan	Arizona State University School of Computer Science
Greg Pivirotto	University Medical Center Corporation
Rick Potter	Health Services Advisory Group
Patt Rehn, R.N.	Arizona Nurses Association
John Rivers	Arizona Hospital and Healthcare Association
Anthony D. Rodgers	Arizona Health Care Cost Containment System
Phyllis Rowe	Arizona Consumers Council
Michael Sherman	Salt River Project*
Richard Silverman	Salt River Project
Jim Sinek	Verde Valley Medical Center
Christina Urias	Arizona Department of Insurance
Wendy Vittori	Motorola
Michael Warden	Banner Health*
Amanda Weaver	Arizona Osteopathic Medical Association
Ronald S. Weinstein, M.D.	University of Arizona College of Medicine
Gerald Wissink	BHHS Legacy Foundation

*Substitute member

Executive Leadership Team

Chris Cummiskey	Government Information Technology Agency
Roger Hughes	St. Luke's Health Initiatives
Anthony Rodgers	Arizona Health Care Cost Containment System
Beth Schermer	University of Arizona College of Medicine
Anne Winter	Governor Napolitano's Office

Task Group Leadership Team

Clinical Task Group

Chair:	Bruce Bethancount, M.D.
Facilitator:	Seth Foldy, M.D.
Staff:	Andy Miller/Chris Muir

Technical Task Group

Chair:	Eric Dean
Facilitator:	Paul Biondich, M.D.
Staff:	Chris Muir

Financial Task Group

Chair:	Rick Potter
Facilitator:	Jay McCutcheon
Staff:	Elizabeth McNamee

Legal Task Group

Chair:	Kristen Rosati
Facilitator:	Bill Braithwaite, M.D.
Staff:	Andy Miller

Governance Task Group

Chair:	David Landrith
Facilitator:	Seth Foldy, M.D.
Staff:	Lorie Mayer

eHealth Initiative and Partners

Paul Biondich, M.D.
Bill Braithwaite, M.D.
Seth Foldy, M.D.
Janet Marchibroda
Jay McCutcheon
Katie Sawyer
Emily Welebob

Project Management Team

David Engelthaler
Lorie Mayer
Elizabeth McNamee
Andy Miller
Chris Muir
Kristen Rosati
Harvey Shrednick
Emily Welebob

Task Group Membership

Nancy Abell
Richard Adams
Ken Adler, M.D.
Rep. Amanda Aguirre
Desh Ahuja
Deniz Akinc
Sheena Albright
Sarah Allen
Anna Alonzo
Jason Attakai
Wade Bannister
Leila Barraza
Mary Jean (MJ) Barrett
Tim Barrett
Kevin Basso
Laura Bazzill
Scott Beatty
Lori Bedford
Mary Benhase
Wendy Benz
Mona Berkowitz
Ira Berkowitz
Bruce Bethancourt, M.D.
Tom Betlach
Jack Beveridge
Mark Bezjian

Kalyanramon Bharathan
Paul Biondich, M.D.
Rick Blankinship
Ken Bobis
William Bonfield, M.D., M.P.H.
Bill Braithwaite, M.D.
John Braswell
John Brimm, M.D.
Tom Brink
Leslie Bromberg
Kathy Byrne
Andrea Cabrera
Laura Carpenter
Michael Carter
Barry Cassidy, M.D.
Pete Cerchiara
Gordon Chagrin
Ricardo Chavez
David Clark
Susan Cobb
Barbara Cohen
Daniel Cohen
Darrell Contreras
Joshura Cork
Van Cosby
Jim Cramer
Bradford Croft, D.O.
Chris Cronberg
Robert Crossley
Sandra Davidson
Byron Davies
Jack Davis
Mary Davis Doyle
Eric Dean
Django Degree
Linda Deiley
Deborah Dennis
Matt Devlin
Kevin Dolan
Robert Dowd
Roger Downey
Andy Draper
Paula Dunn
Judith Effken
Mark Emery
Scott Endsley, M.D.
Dave Engert
Edie Faust
Bill Fink
Angela Fischer
Sharon Flanagan-Hyde
Jeff Flick
Seth Foldy, M.D.
Chris Fonner
Brian Foster
Don Foster
Richard Fox
Robin Furlong
Rita Gangi
Margaret Garcia
Amy Gelliffe, M.D.
Sue Gerard
Denice Gibson
Katy Gilbert
Michael Gleason
Michal Goforth
Nathan Goldberg
David Gregg Gordon
Janet Gordon Kennedy
Louis Gorman
Martin Goslar, Ph.D.
Kimiko Gosney, M.S.
Alan Grobman, M.D.
Julie Hale
Francine Hardaway
Phil Harrington
Kim Harris-Salamone
Eric Hedlund
Patricia Henrikson
Barbara Hess
Michelle Hindman
Joyce Hospodar
Jim Houtz
John Hoyt
Alison Hughes
Becky Hull
Minu Ipe
Carol Iverson
Doug Jaeger
Bruce Jameson
Karen Jiggens
Bill Johnson
Dana Johnson
Julie Johnson
Mary Beth Joublanc
Jack Keane
Michael Keeling
Kenneth Kelley
David Kempson
Leonard Kirschner, M.D.

Jeremy Klages
Glen Klineer
Penny Knochenhauer
Sharon Kocher
Ken Komatsu
Mary Kopp
Uday Kulkarni
Connie Lagneaux
David Landrith
William Larkin
Mary Jo Laufenberg
Jim Lauves
Chuck Lehn
Marc Leib, M.D.
Lee Lemelson
Steve Lieber
Denise Link
Thomas Lites
Nicki Lovejoy
Kathy Malloch
Jeannie Marino
Lorie Mayer
Joel McAldruff
Brian McAnallen
Mark McCourt
Lisa McCoy
Sue McCoy, R.N.
Jay McCutcheon
Mike McHale
Ted McKever
Elizabeth McNamee
Terry McPeters
J. McVey
Thomas McWilliams, D.O.
Manjula Mellacheruvu
Linda Melton
Laura Meyer
Chris Meyers
Joe Miglietta
Samuel Miller
Andy Miller
Darrell Mills
Bevey Miner
Mark Moehling
Susan Morley
Zach Mortensen
Bruce Mortenson
Chris Muir
Anita Murcko
Tina Naugle
John Nelson
Debbie Nixon
Susan Noack
Richard Noll
Laura Norquist
Celeste Null
Michael O'Hara
Christopher Oliver
Josh Padnick
Kathleen Pagels
Norma Peal
Gregory Pendergrass
Stan Person
Bonnie Petterson
Bill Pike
Debi Pomeroy
Richard Porter
Radi Ann Porter, R.N.
Tracy Post
Rick Potter
Deborah Prokop
Michael Prudence
Sally Reel
Patt Rehn, R.N.
Jay Resio
Chuck Revenew
Bart Rippenger, D.P.M.
John Rivers
Tony Rodgers
Anne Romer
Kristen Rosati
David Runt
Mary Rybka, R.H.I.T.
Scott Sadler
Russ Savage
Katie Sawyer
Sandra Schindler
Christopher Sedor
Enrique Serna
Paul Shannon
Ben Shao
John Sheldon
Michael Sherman
Harvey Shrednick
Jenn Simmon
Cynthia Smith
Steve Smith
Julie Smith David
Marshall Smith, M.D., Ph.D.
Jared Smout

Dan Soule
Sydney Standifird
Mike Stearns
Christine Steigerwald
Steven Steinberg
Sylvia Stock
Randy Stone
Pam Stott
Linsy Strait
John Swagart
Holly Swenson
Dave Syposs
Matt Taylor
Liz Temple M.P.A., J.D.
Marilyn Teplitz
Roy Teramoto
Kay Thompson
Micheal Toomey
Gail Ulan
Peach Unrast
Tom Updike, M.D.
Iris Villarreal
Geoffrey Walton
Jim Wang
Todd Watkins
Rita Weatherholt
Amanda Weaver
Jack Weiss, M.D.
Emily Welebob
Kathy Wells
Bruce Werber, D.P.M.
Liddy West
David Woodcock
Joe Yelanich
Lon Yo
Ping Zhang
Judy Zimmet

XIII. Appendices

Appendix A: Governor's Executive Order

Executive Order 2005- 25
Arizona Health-e Connection Roadmap

WHEREAS, on April 12, 2004 President Bush called for widespread adoption of interoperable electronic health records (EHRs) within 10 years and established the Office of the National Coordinator for Health Information Technology (ONCHIT); and

WHEREAS, ONCHIT issued a ***Framework for Strategic Action: The Decade of Health Information Technology: Delivering Consumer-centric and Information-rich Health Care,*** (the "***Framework***") outlining four requirements for achieving the President's goal of widespread adoption of health information technology (HIT), including the need to: 1) develop interoperability standards; 2) support and encourage the development and use of EHRs and electronic data exchange infrastructure; 3) establish policies and regulation consistent with these goals and information security requirements; and 4) create an Internet-based architecture for nationwide health information exchange; and

WHEREAS, the ***Framework's*** goals are consistent with those of the State of Arizona to achieve 100% electronic health data exchange between payers, health care providers, consumers of health care, researchers, and government agencies as appropriate; and

WHEREAS, the federal Department of Health and Human Services (DHHS) estimates that savings of $140 billion per year, or close to 10% of total health spending in the United States, could be achieved through HIT by reducing duplicative care, lowering health care administrative costs, and avoiding errors in care; and

WHEREAS, the federal government intends to financially support local and statewide initiatives aligned with federal efforts to achieve the President's HIT goals; and

WHEREAS, Arizona recognizes that early adoption of a statewide e-health information infrastructure would improve the quality and reduce the cost of health care in Arizona by: 1) ensuring health information is available at the point of care for all patients; 2) reducing medical errors and avoiding duplicative medical procedures; 3) improving coordination of care between hospitals, physicians, and other health professionals; 4) furthering health care research; and 5) providing consumers with their own health information to encourage greater participation in their own health care decisions; and

WHEREAS, Arizona must control health care costs as a key to a long-term strategy of reducing state expenditures and enhancing the business environment for both large and small employers; and

WHEREAS, a statewide e-health information infrastructure must be organized and structured in a manner to protect the privacy and security of health information; and

WHEREAS, establishing an Arizona Health-e Connection Roadmap will guide legislative and regulatory actions, encourage coordinated efforts in the private health care sector, further public and private partnerships for the development of a statewide health information infrastructure, and maximize federal financial participation to support the goal of early adoption of an e-health information infrastructure;

NOW, THEREFORE, I, Janet Napolitano, Governor of the State of Arizona, by virtue of the authority vested in me by the Constitution and laws of this State, hereby order and direct as follows:

1. The Director of the Government Information Technology Agency ("GITA") shall convene a Call to Action Summit of health care industry executives, technology leaders, content experts, major employers, community leaders and interested government agencies within sixty (60) days of the execution of this Order to solicit input and participation in the creation of an e-health information infrastructure for Arizona.

2. There is hereby created a Steering Committee for Arizona Health-e Connection (the "Steering Committee"). The Steering Committee shall be chaired by the Director of GITA and shall comprehensively review issues surrounding the creation of an e-health information infrastructure in Arizona and develop guidance (to be known as the "Arizona Health-e Connection Roadmap") for the users of such infrastructure.

3. Members of the Steering Committee shall be appointed by, and serve without compensation at the pleasure of, the Governor. The Steering Committee shall include representatives from:
   - Major employers
   - Health plans
   - Physician community
   - Hospitals and hospital systems
   - Healthcare foundations and organizations involved in e-health information
   - Healthcare Associations
   - Arizona Health Care Cost Containment System
   - Arizona Department of Health Services
   - Arizona Department of Administration
   - Arizona Department of Insurance
   - Arizona Universities
   - Health information, privacy and security content experts

3. Task groups within the Steering Committee shall be formed to develop recommendations for:
   - Identifying existing e-health resources, including funding sources, to support the development of a statewide e-health information infrastructure;
   - Identifying technology options, and their advantages and disadvantages, for a statewide e-health information infrastructure;
   - Identifying options for serving consumer health information needs;
   - Ensuring health information privacy and security in electronic health information exchange;
   - Facilitating statewide adoption of electronic health record standards to enable health information exchange across the state and nationally; and

- Creating organizational and governance structures for a statewide e-health information infrastructure.

4. The Steering Committee shall explore funding options for the cost of developing the Arizona Health-e Connection Roadmap and the subsequent development of an e-health information infrastructure for Arizona.

5. No later than one hundred eighty (180) days following the Call to Action Summit, the Steering Committee shall submit to the Governor the Arizona Health-e Connection Roadmap, detailing recommended actions and key milestone dates to achieve within the next five years the goals stated in this Executive Order.

IN WITNESS WHEREOF, I have hereunto set my hand and caused to be affixed the Great Seal of the State of Arizona.

GOVERNOR

DONE at the Capitol in Phoenix on this 24th day of August in the Year Two Thousand and Five and of the Independence of the United States of America the Two Hundred and Thirtieth.

ATTEST:

Janice K. Brewer
SECRETARY OF STATE

Appendix B: Organization Structure for *Roadmap* Creation

The organization structure used to create the Arizona Health-*e* Connection *Roadmap* consists of a Steering Committee and supporting task groups. The process is aided by an Executive Leadership Team, Task Group Leadership Team, and a Project Management Team. A listing of all *Roadmap* participants is in the Acknowledgments section of the *Roadmap*.

The **Steering Committee** is charged to comprehensively review issues surrounding the creation of an e-health infrastructure in Arizona and develop guidance for the users of such infrastructure. The Steering Committee is also charged to explore funding options for creation of the infrastructure. There are 42 members on the Steering Committee, including two co-chairs.

Representation on the Steering Committee is broad based and includes membership from the following organizations/sectors:

- Major employers
- Health plans
- Physician community
- Hospitals and hospital systems
- Healthcare foundations and organizations involved in e-health information
- Healthcare associations
- Arizona Health Care Cost Containment System
- Arizona Department of Health Services
- Arizona Department of Administration
- Arizona Department of Insurance
- Arizona universities
- Health information, privacy, and security content experts

Task groups were created to support the Steering Committee and to provide specific recommendations for Steering Committee consideration.

The five task groups established were:

- Clinical
- Technical
- Financial
- Legal
- Governance *

* The Governance Task Group is a subcommittee of the Steering Committee

Participation on the Clinical, Technical, Financial, and Legal task groups was open to all. An inclusive approach to task group membership provided a vehicle for all interested individuals and organizations to be represented. This approach proved successful and provided a rich variety of viewpoints and ideas. About 250 people signed up for task group participation.

Each task group was assigned a chairperson and a facilitator. The chairperson is an Arizona leader (and preferably a member of the Steering Committee). The facilitator is a nationally based expert obtained via an engagement with the eHealth Initiative. (www.eHealthInitiative.org).

An **Executive Leadership Team** provided day-to-day leadership of the project. The Executive Leadership Team, consisting of five members of the Steering Committee, provided guidance and support for the project staff on an as-needed basis. The team provides a channel between the Governor and the Steering Committee and is the Steering Committee's voice to the community. The team also ensures that the Steering Committee and task groups have appropriate resources.

The **Task Group Leadership Team** provided a key venue to continuously align progress and direction of each individual task group with the direction of the overall project. The Task Group Leadership team consisted of the chairperson, facilitator, and staff for each task group.

A **Project Management Team** orchestrated scheduling, logistics, and compilation of presentation materials for the entire process. The Project Management Team reports to the Executive Leadership Team.

Appendix C: Process to Create the *Roadmap*

This appendix discusses the process used to create the *Roadmap*.

The process was kicked off October 5, 2005, at the Governor's Call to Action Summit. About 300 people attended the summit. Attendees were encouraged to volunteer for one or more of the task groups at the summit. Formation of the Steering Committee was completed about a month after the summit. The process to create the *Roadmap* was discussed at the initial Steering Committee meeting.

The seven key steps in the process are below.

1. Steering Committee sets goals, objectives, principles, and policy.
2. Task groups make recommendations for the *Roadmap*.
3. Steering Committee reviews recommendations.
4. Executive Leadership and Project Management Teams synthesize recommendations into a ohesive document.
5. Draft *Roadmap* is presented to the Steering Committee for review and approval.
6. Once approved, the *Roadmap* is presented to the Governor.
7. Upon the Governor's direction, the *Roadmap* is implemented.

A more detailed description of each step in the process follows.

Step 1. Steering Committee sets goals, objectives, principles, and policy.

The Steering Committee is responsible for establishing the direction of the *Roadmap*. It developed and approved several documents instrumental in moving the project forward. The documents include the Arizona Health-*e* Connection Briefing Paper, a Values and Guiding Principles document, a Mission Statement, and charges for each of the five task groups.

The Arizona Health-*e* Connection Briefing Paper is a starting point for creation of the *Roadmap*. It provides a baseline of the e-health landscape from a national perspective and an Arizona perspective. Of special interest is a section that summarizes responses from a group of 27 Arizona leaders on the state of e-health in Arizona. The paper is available at http://www.azgita.gov/tech_news/2005/ehealth/Briefing.pdf.

The Steering Committee also provided a Mission Statement and a Values and Guiding Principles document for the *Roadmap*. These documents are in Figures XVIII and XIX.

Finally, the Steering Committee provided a Task Group Charge for each of the five task groups. The Task Group Charge document provides specific direction for deliverables from each group. The charges correlate to the Governor's Executive Order and are listed in Figure XX.

Figure XVIII: Mission Statement

"Facilitate the design and implementation of integrated statewide health data information systems that support the information needs of consumers, health plans, policymakers, providers, purchasers, and researchers and that reduce healthcare costs, improve patient safety, and improve the quality and efficiency of healthcare and public health services in Arizona."

Figure XIX: Values and Guiding Principles

ARIZONA HEALTH-*E* CONNECTION ROADMAP

VALUES AND GUIDING PRINCIPLES

The Health-*e* Connection *Roadmap* will articulate a path to improve the quality and reduce the cost of healthcare in Arizona. The *Roadmap* will be designed to identify key decision points by focusing on the what, when, why, and who—what action needs to occur, when the action needs to occur, why the action is necessary, and who (individual/group/organization) is required to complete the action. In addition, barriers to implementation must be identified to achieve the goals outlined in the *Roadmap*.

To aid in the *Roadmap* development process, specific values and guiding principles have been identified as critical ingredients of success and will serve as the foundation for a long-term strategy:

1. CREATE ACHIEVABLE, ACTIONABLE, AND PRACTICAL INITIATIVES.
   - Develop and implement short-term (one year or less) achievable, practical, and measurable initiatives as part of the *Roadmap* to show early progress, value, and momentum.
   - Develop mid-term and long-term recommendations for full implementation.
   - Provide recommendations that reach across geographical, demographic, and organizational boundaries

2. ENSURE THAT INITIATIVES ARE CONSUMER-FOCUSED.
   - Involve consumers from the start in the governance and advisory structure of an interoperable HIT environment, as appropriate.
   - Provide recommendations that will enable consumers to make more fully informed choices on their own healthcare with respect to value and quality of care.
   - Ensure that consumer health information security and privacy needs are met.

3. PROVIDE TECHNICAL BASIS FOR HEALTH DATA EXCHANGE.
   - Develop and implement a technical infrastructure that will support the federal initiative of interoperable, real-time electronic health data exchange based on national standards.
   - Ensure health information availability at the point of care for all providers and patients.

4. PROMOTE SUSTAINABILITY.
   - Develop and maintain a model for sustainability and continuous improvement that adapts to change and aligns the costs and incentives with the benefits related to health information technology and health information exchange.
   - Develop a governance structure that attracts and retains participants and defines roles and responsibilities of a public-private collaborative.

5. INCREASE THE QUALITY AND PERFORMANCE OF HEALTHCARE IN ARIZONA.
   - Identify metrics to measure performance from the perspective of patient care, public health, provider and payer value, and overall economic value.
   - Control healthcare costs to reduce state expenditures and enhance the business environment for both small and large employers.
   - Provide clinicians and other authorized healthcare professionals with clinical decision support to enhance decisions, avoid clinical errors, including medication errors and adverse events, avoid duplicative medical procedures, and assist in following recommended practices throughout the care delivery process.
   - Enhance and facilitate the use of patient care data for appropriate public health disease surveillance, outbreak detection, trending, and health protection efforts.
   - Collect and use scientifically valid data and information to assess the quality, performance, and cost of healthcare.

6. ASSIST IN HEALTHCARE RESEARCH.
   - Collect and use data and information for scientifically valid research and public health.

Figure XX: Task Group Charges

CLINICAL TASK GROUP

Leadership:

Chair:	*Bruce Bethancourt, M.D.*
Facilitator:	*Seth Foldy, M.D.*
Staff:	*Andy Miller/Chris Muir*

The exchange of electronic health information can improve the quality, safety, and efficiency of healthcare. There are imperatives that drive the formation of health information exchange networks to equally serve the provider, payer, and patient communities. Establishing clear priorities and articulating benefits for each community encourages active participation and gain sharing by all participants.

Executive Order Reference
Develop recommendations for facilitating statewide adoption of electronic health record standards to enable health information exchange across the state and nationally.

Clinical Task Group Is Charged With:

Initial Task:

- Define criteria (such as reach, feasibility, and impact) to prioritize key "product" types (such as a continuity of care record, ePrescribe, etc) to be implemented on the *Roadmap*.
- Identify and prioritize the key "product" types to be implemented on the *Roadmap*.

Upon Completion of Initial Task:

- Define use cases (real-world examples) that are appropriate for the first key "product" types identified.
- Identify key barriers to adoption and recommend strategies for working with the identified community to clear those barriers.

Clinical Task Group Shall Also:

- Coordinate with and give input to the Legal, Financial, and Technical Task Groups and Steering Committee.
- Present findings, analysis, and recommendations at the March 2006 Steering Committee meeting.

Figure XX: Task Group Charges (continued)

FINANCIAL TASK GROUP

Leadership:
Chair: *Rick Potter*
Facilitator: *Jay McCutcheon*
Staff: *Elizabeth McNamee*

An effective financial model is required to drive widespread adoption and diffusion of HIT and health information exchange. Financial incentives must be properly aligned, and a realistic business case and value proposition should be defined for e-health data exchange.

Executive Order Reference
Develop recommendations for identifying existing e-health resources, including funding sources, to support the development of a statewide e-health information infrastructure.

Financial Task Group Is Charged With:

Initial Tasks:

- Articulate the value of investment and the business case for investment in health information exchange.
- Examine approaches and successful examples of financial strategies to increase adoption of HIT and e-health data exchange from within Arizona and other regions.
- Propose finance strategies for funding HIT and e-health data exchange (start-up and long-term), including the appropriate role of public and private sectors.

Upon Completion of Initial Tasks:

- Identify specific financial actions required to support the first key "product" types (as identified by the Clinical Task Group and approved by the Steering Committee).
- Provide an estimate for total cost of implementation of the first key "product" types.
- Provide an estimate for total cost of implementation of the Arizona Health-e Connection Roadmap.

Financial Task Group Shall Also:

- Coordinate with and give input to the Clinical, Technical, and Legal Task Groups and Steering Committee.
- Present findings, analysis, and recommendations at the March 2006 Steering Committee meeting.

Figure XX: Task Group Charges (continued)

TECHNICAL TASK GROUP

Leadership:

Chair:	*Eric Dean*
Facilitator:	*Paul Biondich, M.D.*
Staff:	*Chris Muir*

A robust technical model is required for effective e-health data exchange. It is imperative to leverage current available technology and build on technical successes from other implementations to address e-health data exchange and business needs. A process to establish consensus must be created to ensure appropriate technical standards are applied.

Executive Order Reference
Develop recommendations for identifying technology options, and their advantages and disadvantages, for a statewide e-health information infrastructure.

Technical Task Group Is Charged With:

Initial Tasks:

- Discuss and document different options/examples of technical architectures used by health information exchange initiatives and the best uses of each.
- Complete an inventory of existing Arizona state technical infrastructure resources and increase understanding of what infrastructure resources can be leveraged.

Upon Completion of Initial Tasks:

- Recommend a process, inclusive of appropriate groups and organizations, to establish design guidelines for technology, including compliance with national standards to ensure e-health data exchange.
- Create technical requirements based on business and clinical use cases (as defined by the Clinical Task Group) required for the first key "product" types (as identified by the Clinical Task Group and approved by the Steering Committee)

Technology Task Group Shall Also:

- Coordinate with and give input to the Clinical, Financial, and Legal Task Groups and Steering Committee.
- Present findings, analysis, and recommendations at the March 2006 Steering Committee meeting.

Figure XX: Task Group Charges (continued)

LEGAL TASK GROUP (PRIVACY AND SECURITY)

Leadership:
Chair: *Kristen Rosati*
Facilitator: *Bill Braithwaite, M.D.*
Staff: *Andy Miller*

For an e-health data exchange to be successful, consumers must trust that their health information will be kept confidential and secure. There is thus a critical need to review federal and state laws affecting e-health data exchange, particularly those related to confidentiality, use, and disclosure of health information, and to anticipate new issues that may arise through e-health data exchange across multiple environments.

Executive Order References
Develop recommendations for identifying options for serving consumer health information needs; develop recommendations for ensuring health information privacy and security in electronic health information exchange.

Legal Task Group Is Charged With:

Initial Tasks:

- Document real and perceived legal barriers that could dramatically hinder an e-health data exchange for different purposes, including for treatment, payment functions, quality improvement, public health, and research.
- Make recommendations on whether health information with "special" protection will be included in the e-health data exchange (such as mental health information, alcohol and drug abuse treatment information, communicable disease information, and genetic testing information) and potential limits required on the use and disclosure of that special information.
- Understand consumer expectations for an e-health data exchange and make recommendations on the role of consumers in an e-health data exchange, including whether consumers will be permitted to opt out of having their information included in the exchange.
- Identify examples of best practices from other regions that can be applied to a variety of healthcare environments, that comply with HIPAA, and that represent consumer interests.

Upon Completion of Initial Tasks:

- Identify specific legal actions required for the first "product" types (as identified by the Clinical Task Group and approved by the Steering Committee), including whether statutory or regulatory amendments are needed.
- Identify practical strategies and solutions (not technical) for developing e-health data exchange that will ensure the secure and confidential transmission of medical information.

Legal Task Group Shall Also:

- Coordinate with and give input to the Clinical, Financial, and Technical Task Groups and Steering Committee.
- Present findings, analysis, and recommendations at the March 2006 Steering Committee meeting.

Figure XX: Task Group Charges (continued)

GOVERNANCE TASK GROUP

Note: The Governance Task Group is a subcommittee of the Arizona Health-e Connection Steering Committee. The task group will be staffed by Steering Committee members.

Leadership:

Chair:	*David Landrith*
Facilitator:	*Seth Foldy, M.D.*
Staff:	*Lorie Mayer*

A public-private collaborative structure is needed for the success of an electronic health information exchange organization that supports the development and implementation of a shared vision and plan for addressing healthcare challenges through information technology and health information exchange in Arizona.

Executive Order Reference
Develop recommendations for creating organizational and governance structures for a statewide e-health information infrastructure.

Steering Committee is charged with the following Governance tasks:

- Develop a draft shared vision statement, guiding principles, and operations of a statewide collaborative.
- Examine successful examples of governance strategies used by working health information exchange initiatives.
- Define a structure and approach that effectively attracts and retains participants and defines roles and responsibilities of a public-private collaborative.
- Discuss legal barriers and/or legal incentives associated with various governance models.
- Create a communication plan that conveys accurate and useful information, uses existing communication channels, creates new channels as needed, and presents information in a timely and effective manner.
- Coordinate with and give input to all four task groups.
- Present findings, analysis, and recommendations at the March 2006 Steering Committee meeting.

Step 2. Task groups make recommendations for the *Roadmap*.

Each task group was responsible for making recommendations to the Steering Committee based on its charge (see Figure XX). To accomplish this task, each task group conducted a series of meetings to discuss its charge, priorities, and alternatives and to reach general consensus.

By design, the Clinical Task Group was the lead group. It was the responsibility of the Clinical Task Group to determine priorities for the *Roadmap* based on urgency (see the *Roadmap* section on Fundamental Concept #2: Urgency Balanced by Feasibility Determines Timing of Roadmap Inclusion).

It was noted that the Clinical Task Group represented payers, providers, and patients in their deliberations of priorities. Although representation of providers in the task group was prevalent, it is believed the urgent priorities from the perspective of patients and payers were effectively represented.

The top priorities identified by the Clinical Task Group were:

- Create shared information access between professionals to
  - Support quality systems
  - Support continuity of care and access
  - Improve cost efficiency
  - Improve safety

- Add processes and interfaces for patient information access and communication (next priority), public health functions (next priority), research, and other functions (later priority)

These priorities were translated into *urgent* product types and presented to the Financial, Technical, and Legal Task Groups for *feasibility* analysis. The *urgent* product types determined by the Clinical Task Group are:

Initial Product:

- Historical, assembled view of a patient's high-value information from across all providers (continuity of care information)
  - Positive impact on all four top clusters (quality, safety, continuity of information, and cost efficiency)
  - Patient's high-value information includes medications prescribed, medications dispensed, allergies, immunizations, lab results and trends, other providers caring for patient (and contact info), cumulative medical problem list (from billing and/or EMRs), insurance/eligibility and basic demographic information of patient, and hospital and emergency department discharge information.

Other Products of Interest:

- ePrescribe

- Secure communication between users (providers initially)

- Decision support

In considering *feasibility*, it was the responsibility of the Technical, Legal, and Financial Task Groups to determine, "What needs to happen to implement the Clinical Task Group product-type priorities?" In considering this question, the task groups needed to balance factors such as:

- Were any prerequisite technical activities/ projects required?

- Importance of establishing early wins to maintain project momentum

- How would startup capital and sustainable funding be obtained?

Initiatives such as a results delivery service and the Web portal were determined critical during this phase of roadmap construction. These initiatives, for example, are both prerequisites for establishment of a patient health summary.

Regular meetings of the Task Group Leadership Team were conducted to maintain synchronization among the task groups. The meetings also served as a forum to vet conclusions and recommendations before they were forwarded to the Steering Committee.

The Clinical Task Group conducted five meetings, the Legal Task Group conducted two meetings, the Technical Task Group conducted three meetings, the Financial Task Group conducted three meetings, and the Governance Task Group conducted four meetings.

Step 3. Steering Committee reviews recommendations.

The Steering Committee approved high-level recommendations from the five task groups on March 8, 2006.

Step 4. Executive Leadership and Project Management Teams synthesize recommendations into a cohesive document.

The process of creating the *Roadmap* commenced March 8, 2006, upon approval of high-level recommendations by the Steering Committee and was completed April 3, 2006.

Step 5. Draft *Roadmap* is presented to the Steering Committee for review and approval.

A draft copy of the *Roadmap* was delivered to the Steering Committee March 28, 2006.

Step 6. Once approved, the *Roadmap* is presented to the Governor.

The Steering Committee approved the *Roadmap* on April 4, 2006.

Step 7. Upon Governor's direction, the *Roadmap* is implemented.

Appendix D: HIT Support Organizations

Doctors Office Quality-Information Technology Initiative (DOQ-IT)

The Doctors Office Quality-Information Technology Initiative (DOQ-IT) is a three-year national initiative of the Centers for Medicare & Medicaid Services (CMS) to promote adoption and effective use of information technologies in small- to medium-sized primary care practices. The national aim is to increase adoption of electronic health records by 5 to 6 percent within three years. At the state level, the Quality Improvement Organization (QIO) provides coordination of technical assistance activities of the DOQ-IT initiative. In Arizona, the Health Services Advisory Group (HSAG) is the state QIO responsible for DOQ-IT. HSAG is partnering with the Arizona Medical Board, the Arizona Medical Association (ARMA), the Arizona Academy of Family Physicians (AAFP), the Arizona chapter of the American College of Physicians (ACP), and the American Academy of Pediatrics (AAP) to promote EHR adoption. The Arizona DOQ-IT Web site is www.azdoqit.org.

The following recommendations were provided by DOQ-IT for implementing the HIT portion of the *Roadmap*:

- Convene health plans to establish a grant pool that could be managed by an HIT foundation
- Convene the banking and lending industry to establish common practices for lending for HIT
- Create state loan guarantees for HIT small practice loans
- Co-sponsor EHR University. Include the University of Arizona College of Medicine and the Arizona State University Bioinformatics Institute
- Organize statewide purchasing cooperative for small- to medium-sized practices
- Sponsor a speakers' bureau
- Sponsor town halls to introduce *Roadmap* and promote HIT adoption

Healthcare Information and Management Systems Society (HIMSS)

HIMSS is the healthcare industry's membership organization exclusively focused on providing leadership for the optimal use of healthcare information technology and management systems for the betterment of human health.

HIMSS supports HIT adoption and standards with a wide variety of educational events, conferences, Webinars, advocacy, and standards. Here is a listing:

CCHIT

HIMSS, AHIMA (American Health Information Management Association), and The Alliance (formerly National Alliance for Health Information Technology) have joined forces to launch the Certification Commission for Healthcare Information Technology (CCHIT). These three associations have committed funding and staff to support the commission during its organizational phase. CCHIT's mission is to accelerate the adoption of robust, interoperable HIT throughout the U.S. healthcare system by creating an efficient, credible, sustainable mechanism for the certification of HIT products.

Advocacy

As a partner of the Capitol Hill Telehealth and Healthcare Informatics Series, HIMSS convenes regular luncheon programs on Capitol Hill. Held on behalf of the Capitol Hill Steering Committee on Telehealth and Healthcare Informatics, it is designed to inform federally elected officials and their staffers on topics pertinent to HIT.

Standards

HIMSS has been assigned the role as secretariat to ISO TC/215, the technical committee of the International Organization for Standardization (ISO) for healthcare informatics, and other activities.

Physicians Adopting Computer Technology (PACT)

These are a series of conferences addressing the challenges and successes of EMR implementation held around the country for the independent physician practice.

Integrating the Healthcare Enterprise (IHE)

Integrating the Healthcare Enterprise (IHE) is a multiyear initiative that creates the framework for passing vital health information seamlessly—from application to application, system to system, and setting to setting—across the entire healthcare enterprise.

RHIO Federation

To begin supporting the development of regional health information organizations (RHIOs) and health information exchanges (HIE), HIMSS has launched the RHIO Federation to focus on three key areas of collaboration: chain of trust, business rules, and harmonization.

The HIMSS RHIO Federation's goal is to help foster the RHIO/HIE industry through education, outreach, and advocacy activities at the local, state, and federal levels. All Federation activities will be supported by 43 regional chapters through the RHIO Federation Chapter Liaison program. Federation liaisons and HIMSS' staff and membership of subject matter experts will be made available to RHIO/HIE initiatives nationwide to help them plan, develop, and maintain their business plans by connecting them to the right resources at the right time.

Arizona Health IT Accelerator (AHITA)

AHITA is a nonprofit organization that brings together technologists and physicians dedicated to helping other physicians select, implement, and finance EHRs. AHITA helps physicians by:

- Understanding the business of practicing medicine
- Understanding the technology
- Knowing how to facilitate beneficial change
- Being vendor neutral

A major part of AHITA's work is education. Working with Arizona DOQ-IT and Arizona medical associations (AAFP, AAP, ACP, Arizona Osteopathic Medical Association, and ARMA), AHITA is helping physicians get ready for electronic health records.

Appendix E: Sample HIT Adoption Strategies

The following is a list of potential approaches to encourage HIT adoption for consideration by the statewide governance organization. The list was developed by the task groups and the Task Group Leadership Team. There is no implied order or priority of the listed approaches.

PLANNING

- General assistance
- Standards, CCHIT, CDA, HL7, coding
- Arizona guidelines and materials
- Vendor and product ratings with comparisons and reports
- Pricing information
- Example RFPs and contracts
- Interregional network for information sharing

FINANCING

- ROI studies
- HIT tax credits, including credits for special populations and credits for utilization
- Low-interest loans
- Reimbursement for HIT integration with statewide HIE program
- HIT ASP services
- EMRs and other products as part of the HIE
- Grants from governments, foundations, and other sources
- Hospital HIT foundation

IMPLEMENTATION

- General assistance
- Example implementation plans
- Example network plans
- Example interface specifications
- Work process analysis templates
- Example procedures (e.g., change management)
- Network infrastructure
- Hardware procurement/replacement
- Design assistance
- User groups and chat rooms
- QIO staff support
- Joint ventures of HIT implementations
- HIT "Peace Corps"

EDUCATION AND ADOPTION

- EMR subsidies for medical schools
- Training programs (e.g., through community colleges and technical and medical schools)
- HIT education with CME credits
- Readiness assessment templates
- Training manuals
- SuperUser Network

Appendix F: Business Case for Electronic Orders and Results for Laboratory

Business Case for Electronic Orders and Results for Laboratory

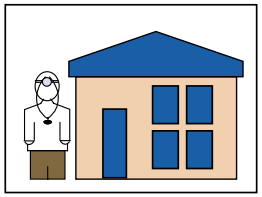
The business case enabling referring physicians to order laboratory tests and receive their results electronically is a compelling one. Without the electronic orders and results system, the reliance on paper documents caused numerous errors and delays in testing. The paper documents were incomplete and inaccurate because of illegible writing. In addition, vague orders were given, resulting in the wrong tests being performed. The ordering physician's office was impacted because this task was handled manually and relied on the office staff to provide the laboratory with all relevant information, including patient demographics, medical history, diagnosis, and medical necessity. If the information was not complete, the office or the patient had to be contacted directly for the required information. The manual paper process could cause delays in testing and require rework for the physician. The patient was inconvenienced by the need to complete missing data, by being billed incorrectly and, in worst cases, by having to return to the laboratory for a redraw. All data entry in the laboratory to initiate testing was manual, creating another possible error point, and costly to perform. Results were sent to physicians via courier, fax, or remote printing.

With the implementation of electronic orders and results, the laboratory receives accurate data from the ordering physician. The system has all requirements inherent in the system and prompts the staff for all demographics and testing information. The medical necessity logic is in the system, preventing billing errors and delays. The physician's office staff has an electronic record of the ordered tests for follow-up and the patient's demographics are the same as in the office system. The order is received by the laboratory directly into its system, which reduces manual data entry and errors due to inaccurate test requests or specimen requirements. Once the testing is reported, the results are immediately available electronically for the physician's office. There is no need to wait for courier delivery, faxes, or remote printing.

Overall, the electronic orders and results process reduces cost for both the ordering physicians and the laboratory because the orders are validated in the system and screened for errors, reducing rework and phone calls to clients. Quality improvements are seen in the laboratory because the correct tests and specimen requirements are adhered to; orders are electronically received, reducing data entry errors and improving turnaround time for testing. Results are sent directly to the physician's system electronically and are available for immediate review. This also reduces costs for courier delivery. Patients benefit because their orders are received correctly with all required data, reducing the number of redraws and requests for correct demographic information. The whole cycle, from test ordered to result to billing, is reduced through the electronic process.

The following two pages provide a view of the environment before and after implementation of an automated lab system.

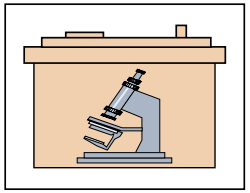
Business Case: Orders and Results
Laboratory Example
(Before)



Physician Practice

Orders

Results / Reports



Laboratory

Physician Practice
Assumptions & Implications

- **Physician requests lab testing via paper requisition or written script**
- **Patient sent to patient service center with laboratory requisition or script**
- **Some patients are drawn in physician's office and paper requisition or script accompanies specimen in transport to laboratory**
- **Specific lab tests codes not always used, especially on scripts, written description of requested tests on document**
- **Specimen requirements are offline, in a reference manual for physician's use**
- **No adherence to required data on paper documents, missing patient demographics and test information occurs frequently, delaying testing**
- **Lack of patient demographic information causes increased contact to physicians for correct information**
- **Physician's system must be updated manually to indicate lab tests ordered**
- **Medical necessity rules and ICD-9 requirements not automated**
- **Physicians are upset with increased calls to their offices for clarification and rework**

Health Information Exchange

Financial & Economic Beneficiaries

Service Level & Operations Beneficiaries

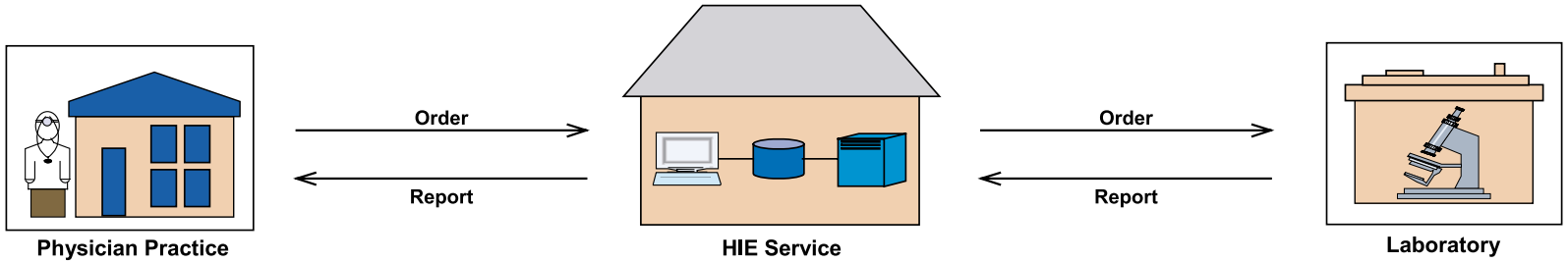
Quality & Safety Beneficiaries

Other Beneficiaries

Laboratory
Assumptions & Implications

- **Paper orders received either when patient presents or with specimen transported from physician's office**
- **If patient is present, the patient must complete a requisition in order to provide demographic data**
- **If patient is not present, the physician must be called or asked for additional written documentation**
- **Paper documents received can be illegible, indicate incorrect test codes, lack specificity, the physician is called for clarification**
- **If specimen sent directly to laboratory from physician's office, inaccurate or incomplete information on paper documents may cause incorrect tests to be performed or missed**
- **All manual data entry for laboratory processing**
- **Patient may have to be re-called and re-drawn due to inaccurate information on paper orders**
- **Results delivered by courier, fax or remote printer, no electronic interfaces to physician's systems**
- **Lab quality is impacted due to rework, delays in testing while awaiting information and increased turnaround time**

Business Case: Orders and Results
Laboratory Example
(After)



Physician Practice
Assumptions & Implications

- •Electronic orders increase accuracy for ordered tests
- •Easy, secure, access to orders, results and diagnostic tools online, from any internet connection via VPN
- •Secure method to share clinical information with other providers
- •Customized screens for test ordering, ICD9 lists
- •No investment in expensive equipment
- •Maintain patient clinical information, test history and trending data
- •Patient-centric database, can combine information from other sources, acts as an EMR
- •Medical necessity logic for compliant ordering
- •Reference manual online
- •E-Prescribing
- •Patient eligibility verification
- •CPU to CPU interfaces-more expensive, varies widely by vendor

Health Information Exchange

Financial & Economic Beneficiaries
Physicians, laboratories, payers, patients

Service Level & Operations Beneficiaries
Physicians, laboratories, patients, payers

Quality & Safety Beneficiaries
Patients, physicians, laboratories, payers, health agencies

Other Beneficiaries
Health agencies, government agencies, specialty groups, RHIO's

Laboratory
Assumptions & Implications

- •Increased accuracy in ordering, reduces missed tests, wrong tests ordered
- •Patients to not have to be re-drawn due to missed or incorrect tests
- •Reduction in labor for specimen processing
- •Reduces turn-around time due to minimal input for lab testing, tests distributed to lab departments quickly
- •Results sent electronically to client, no in-house printing or courier delivery, results available for viewing as soon as finalized
- •Reduced number of calls to client services because information available real time by physician and questions regarding test requirements available online
- •Medical necessity logic in system reduces calls to physicians for additional information
- •Patient eligibility performed by physician office reduces rejections from laboratory payers
- •Data mining capabilities, Hedis reporting, trend data

XIV. Glossary

Application Service Provider (ASP)—A business that provides computer-based services to customers over a network. The most limited sense of this business is that of providing access to a particular application program (such as medical billing) using a standard protocol such as HTTP.

Arizona Department of Health Services (ADHS)—State department involved in a wide array of activities designed to promote and protect the health of Arizona citizens. Some of the services overseen by ADHS are the state's Mental Health program, Assistance and Licensure offices, community and family health, epidemiology and disease control, and Office of Vital Records.

Arizona Health Care Cost Containment System (AHCCCS)—Arizona's Medicaid program. AHCCCS contracts with health plans and other program contractors, paying them a monthly capitation amount prospectively for each enrolled member. The plan or contractor is then "at risk" to deliver the necessary services within that amount. AHCCCS receives federal, state, and county funds to operate, including some money from Arizona's tobacco tax.

Arizona Health Information Security and Privacy Collaboration (AzHISPC)—The Arizona entry for funding from the national Agency for Healthcare Research and Quality (U.S. Department of Health and Human Services) to 1) assess variations in organization-level business policies and state laws that affect health information exchange; 2) identify and propose practical solutions, while preserving the privacy and security requirements in applicable state and federal laws; and 3) develop detailed plans to implement solutions.

Arizona Health IT Accelerator (AHITA)—A nonprofit organization that brings together technologists and physicians dedicated to helping other physicians select, implement, and finance EHRs.

Arizona Health Query (AzHQ)—An integrated database of medical records from public and private data partners in Maricopa County. A joint project of St. Luke's Health Initiatives and Arizona State University, its purpose is to monitor the performance of the local healthcare system in terms of access, quality, and cost, and to conduct research that improves system performance over time.

Arizona Technology Council (ATC)—The largest technology association in Arizona, serving all tech sectors across the state. A member-driven association, ATC represents the interests of technology companies, their support firms, educational institutions, and statewide economic development groups that collectively form Arizona's technology community.

Arizona Telecommunications and Information Council (ATIC)—An economic development foundation under the Governor's Strategic Partnership For Economic Development (GSPED). The ATIC mission is to promote and support the adoption of effective public policies for the state of Arizona and local communities that encourage investment and deployment of information technologies and telecommunication services to enable continued educational advancement, enhanced quality of life, and economic prosperity for the Arizona community.

Broadband—Refers to an increased ability of a user to view content across the Internet that includes large files, such as video, audio, and three-dimensional (3D). A user's broadband capability is typically governed by the last mile issue, the connection between the Internet service provider and the user.

Certification Commission for Healthcare Information Technology (CCHIT)—The mission of CCHIT is to accelerate the adoption of robust, interoperable HIT throughout the U.S. healthcare system by creating an efficient, credible, sustainable mechanism for the certification of HIT products.

Centers for Medicare and Medicaid Services (CMS)—U.S. Department of Health and Human Services agency that seeks to protect and improve beneficiary health and satisfaction; foster appropriate and predictable payments and high-quality care; promote understanding of CMS programs among beneficiaries, the healthcare community, and the public; promote the fiscal integrity of CMS programs and be an accountable steward of public funds; foster excellence in the design and administration of CMS programs; and provide leadership in the broader healthcare marketplace to improve health.

Chronic Care Management—Process used to administer care for high-cost beneficiaries to control costs.

Clinical Document Architecture (CDA)—The CDA, until recently known as the Patient Record Architecture (PRA), provides an exchange model for clinical documents (such as discharge summaries and progress notes) and brings the healthcare industry closer to the realization of an electronic medical record. The CDA Standard is expected to be published as an ANSI-approved standard by the end of 2006. (See Health Level 7.)

Continuity of Care Record (CCR)—A type of patient health summary. CCR is a way to create flexible documents that contain the most relevant and timely core health information about a patient and to send them electronically from one caregiver to another. It contains various sections—such as patient demographics, insurance information, diagnosis and problem lists, medications, allergies, and care plan—that represent a snapshot of a patient's health data that can be useful, even lifesaving, if available when the patient has his or her next clinical encounter.

Disease Management—A system of coordinated healthcare interventions and communications for populations with conditions in which patient self-care efforts are significant. Disease management supports the physician- or practitioner-patient relationship and plan of care, emphasizes prevention of exacerbations and complications using evidence-based practice guidelines and patient empowerment strategies, and evaluates clinical, humanistic, and economic outcomes on an ongoing basis with the goal of improving overall health.

Doctor's Office Quality–Information Technology (DOQ-IT)—Promotes the adoption of electronic health record (EHR) systems and information technology (IT) in small- to medium-sized physician offices with a vision of enhancing access to patient information, decision support, and reference data, as well as improving patient-clinician communications.

Electronic Health Record (EHR)—Generic term for all electronic patient care systems. It is a real-time patient health record with access to evidence-based decision support tools that can be used to aid clinicians in decision-making. The EHR can automate and streamline a clinician's workflow, ensuring that all clinical information is communicated. It can also prevent delays in response that result in gaps in care. The EHR can also support the collection of data for uses other than clinical care, such as billing, quality management, outcome reporting, and public health disease surveillance and reporting.

Electronic Medical Record (EMR)—Electronic record with full interoperability within an enterprise (hospital, clinic, or practice).

ePrescribing—A type of computer technology in which physicians use handheld or personal computer devices to review drug and formulary coverage and transmit prescriptions to a printer or a local pharmacy. ePrescribing software can be integrated into existing clinical information systems to allow the physician access to patient-specific information to screen for drug interactions and allergies.

Government Information Technology Agency (GITA)—The agency responsible for statewide information technology (IT) planning, coordinating, and consulting. The GITA director serves as the chief information officer for state government. GITA is responsible for administering the state's Executive Branch IT resources.

Governor's Council on Innovation and Technology (GCIT)—Formed by executive order, the council consists of 32 members appointed by the Governor and serves without compensation at the pleasure of the Governor.

Greater Arizona eLearning Association (GAZEL)—GAZEL initiatives help eLearning companies develop new business opportunities and advanced technologies and services. GAZEL helps enhance business practices, develop strategic partnerships, and identify sources of business financing. It also provides opportunities to network with consumers and other eLearning professionals, and to engage in professional development opportunities to export client technologies and services nationally and internationally.

Health Information Exchange (HIE)—The mobilization of healthcare information electronically across organizations within a region or community. HIE provides the capability to electronically move clinical

information between disparate healthcare information systems while maintaining the meaning of the information being exchanged. The goal of HIE is to facilitate access to and retrieval of clinical data to provide safer, more timely, efficient, effective, equitable, patient-centered care.

Health Information Technology (HIT)—The application of information processing involving both computer hardware and software that deals with the storage, retrieval, sharing, and use of healthcare information, data, and knowledge for communication and decision-making.

Health Services Advisory Group (HSAG)—Founded by a group of medical professionals in 1979, HSAG is one of most experienced quality improvement organizations in the nation. The mission of the organization is to positively affect the quality of healthcare by providing information and expertise to those who deliver and those who receive health services.

Healthcare Information and Management Systems Society (HIMSS)—The healthcare industry's membership organization exclusively focused on providing leadership for the optimal use of healthcare information technology and management systems for the betterment of human health.

Health Insurance Portability and Accountability Act (HIPAA)—Enacted by the U.S. Congress in 1996. According to the Centers for Medicare and Medicaid Services, Title I of HIPAA protects health insurance coverage for workers and their families when they change or lose their jobs. Title II of HIPAA, the Administrative Simplification provisions, requires the establishment of national standards for electronic healthcare transactions and national identifiers for providers, health insurance plans, and employers.

Health Level Seven (HL7)—One of several American National Standards Institute (ANSI) - accredited standards developing organizations (SDOs) operating in the healthcare arena. Most SDOs produce standards (sometimes called specifications or protocols) for a particular healthcare domain such as pharmacy, medical devices, imaging, or insurance (claims processing) transactions. Health Level Seven's domain is clinical and administrative data.

ICD-9 (International Classification of Disease, 9th Revision)—The 1972 revision of the international disease classification system developed by the World Health Organization (WHO). The International Statistical Classification of Diseases and Related Health Problems (commonly known by the abbreviation ICD) is a detailed description of known diseases and injuries. Published by WHO, it is used worldwide for morbidity and mortality statistics, reimbursement systems, and automated decision support in medicine. The ICD is a core classification of the WHO Family of International Classifications.

Indian Health Service (IHS)—An agency of the U.S. Department of Health and Human Services responsible for providing federal health services to American Indians and Alaska Natives. IHS is the principal federal healthcare provider and health advocate for Indian people, and its goal is to raise their health status to the highest possible level. IHS provides health services to approximately 1.5 million American Indians and Alaska Natives who belong to more than 557 federally recognized tribes in 35 states.

Institute of Medicine (IOM)—A nonprofit organization specifically created for this purpose as well as an honorific membership organization, IOM was chartered in 1970 as a component of the National Academy of Sciences. IOM's mission is to serve as adviser to the nation to improve health. It provides unbiased, evidence-based, and authoritative information and advice on health and science policy to policymakers, professionals, leaders in every sector of society, and the public at large.

Master Patient Index (MPI)—A software database program that collects a patient's various hospital identification numbers, perhaps from the blood lab, radiology, admission and so on, and keeps them under a single, enterprise-wide identification number.

Medical Trading Area (MTA)—An MTAs is usually a geographic area defined by where a population cluster receives its medical services. It is an area in which groups of physicians, hospitals, labs, and other providers work together to serve a population of consumers.

Normalization—The process of redefining clinical data based on some predefined rules. The values are redefined based on a specific formula or technique.

Office of the National Coordinator for Health Information Technology (ONC)—U.S. Department of Health and Human Services office that provides leadership for the development and nationwide implementation of an interoperable health information technology infrastructure to improve the quality and efficiency of healthcare and the ability of consumers to manage their care and safety.

Pandemic—An epidemic (outbreak of an infectious disease) that spreads worldwide, or at least across a large region.

Patient Health Summary—Historical, assembled view of a patient's high-value information from across all providers (continuity of care information). High-priority items identified in the *Roadmap* creation process include medications prescribed, medications dispensed, allergies, immunizations, lab results and trends, other providers caring for patient (and contact information), cumulative medical problem list (from billing and/or EMRs), insurance/eligibility and basic demographic information on patient, and hospital and emergency department discharge care summary

Patient Record Locator—An electronic health record locator that would help patients and their clinicians locate test results, medical history, and prescription data from a variety of sources. For example, physicians could use the locator to find out which other physicians have information on patients they are seeing. A record locator would act as a secure health information search tool.

Personal Health Record (PHR)—An electronic application through which individuals can maintain and manage their health information (and that of others for whom they are authorized) in a private, secure, and confidential environment.

Pima Community Access Program (PCAP)—A not-for-profit organization that provides access to professional healthcare at discounted prices that the uninsured adult can afford. PCAP links low-income, uninsured residents of Pima County with an affordable, comprehensive, and coordinated network of healthcare providers.

Practice Management System (PMS)—Part of the medical office record. It carries the financial, demographic, and non-medical information about patients. This information frequently includes patient's name, patient's federal identification number, date of birth, telephone numbers, emergency contact person, alternate names for the patient, insurance company or entities financially responsible for payment, subscriber information for an insurance company, employer information, information to verify insurance eligibility, information to qualify for lower fees based on family size and income, and provider numbers to process medical claims.

Quality Improvement Organization (QIO)—Medicare QIOs work with consumers, physicians, hospitals, and other caregivers to refine care delivery systems to make sure patients get the right care at the right time, particularly among underserved populations. The program also safeguards the integrity of the Medicare trust fund by ensuring payment is made only for medically necessary services, and investigates beneficiary complaints about quality of care. Under the direction of the Centers for Medicare & Medicaid Services (CMS), the program consists of a national network of 53 QIOs responsible for each U.S. state, territory, and the District of Columbia. (See Health Services Advisory Group.)

Results Delivery Service—Service that delivers clinical results from labs to the ordering clinician in the formats they require. Examples of results include blood tests, immunology, pathology reports, X-ray, CAT scan, mammography, and transcribed reports. The service will deliver those results to the ordering physicians and to anyone else requiring a copy.

Request for Proposal (RFP)—An invitation for suppliers, through a tender process, to bid on a specific product or service. An RFP typically involves more than the price. Other requested information may include basic corporate information and history, financial information (whether the company can deliver without risk of bankruptcy), technical capability (used on major procurements of services, where the item has not previously been made or where the requirement could be met by varying technical means), product information such as stock availability and estimated completion period, and customer references that can be checked to determine a company's suitability.

Regional Health Information Organization (RHIO)—Multi-stakeholder organizations expected to be responsible for motivating and causing integration and information exchange in the nation's revamped healthcare system. Generally these stakeholders are developing RHIOs to affect the safety, quality, and efficiency of healthcare as well as access to healthcare as the result of health information technology. (Note: The *Roadmap* uses the term and definition of medical trading area (MTA) instead of RHIO).

Secure Integrated Response Electronic Notification (SIREN)—Arizona Department of Health Services system that supports disease surveillance and public health response efforts statewide, provides a secure gateway to public health systems, has alerting capabilities and online collaboration tools, and is based on national standards for information sharing.

Southern Arizona Tech Council (SATC)—A nonprofit organization formed in August 2000 whose mission is to promote and implement high-tech industry economic development and competitiveness in Tucson and Southern Arizona.

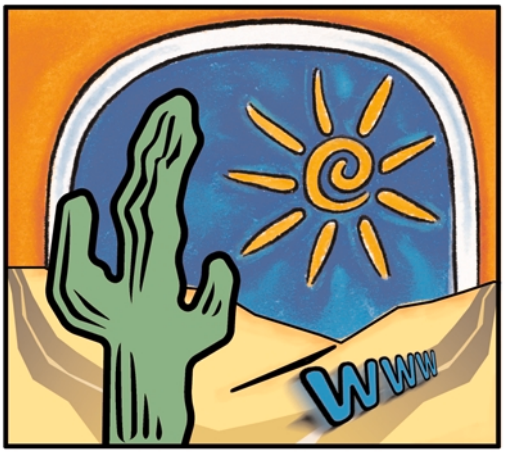
SureScripts—Founded in 2001 by the National Association of Chain Drug Stores (NACDS) and the National Community Pharmacists Association (NCPA) to improve the quality, safety, and efficiency of the overall prescribing process. The SureScripts Electronic Prescribing Network is the largest network to link electronic communications between pharmacies and physicians, allowing the electronic exchange of prescription information.

Veterans Affairs, U.S. Department of (VA)—established on March 15, 1989, succeeding the Veterans Administration. It is responsible for providing federal benefits to veterans and their families. Headed by the secretary of Veterans Affairs, VA is the second largest of the 15 Cabinet departments and operates nationwide programs for healthcare, financial assistance, and burial benefits.

XV. Contact Information

For more information on the report contact:

Chris Muir
Strategic Projects Manager
Government Information Technology Agency
602-364-4779
cmuir@azgita.gov



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